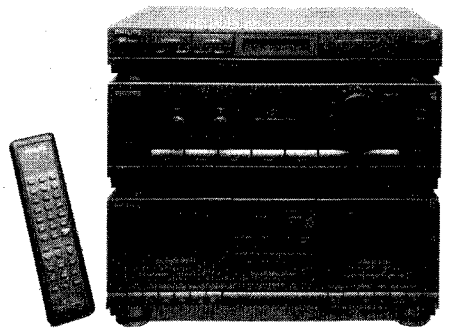
# Digital midi stack 70FS240/00/02/05

Service
Service
**Service**



45 079 A11

# Service Manual

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Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.


Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

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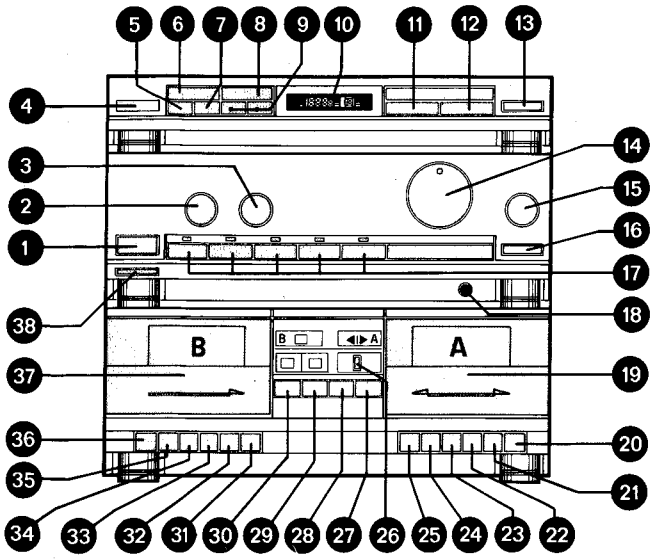
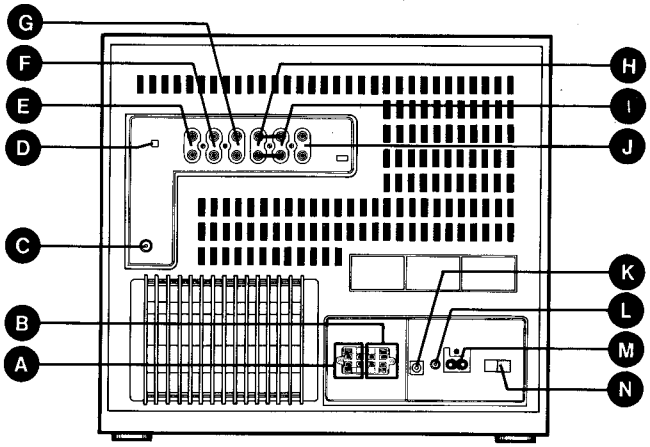
## CONNECTIONS AND CONTROLS




### CONTROLS

| | | |
|---|---|---|
| 1 | **STAND BY** button | 0279 |
| 2 | **BASS** control | 3523 |
| 3 | **TREBLE** control | 3529 |
| 4 | **SENSOR** – IR–remote control | 6415 |
| 5 | **MONO** button | 0275 |
| 6 | **AUTO PROGRAM** button | 0273 |
| 7 | **MEMO** button | 0276 |
| 8 | **AUTO SCAN** button | 0274 |
| 9 | **PRESET DOWN** button | 0277 |
| | **PRESET UP** button | 0278 |
| 10 | **DISPLAY** ( LCD ) | 6400 |
| 11 | **TUNING DOWN** button | 0280 |
| 12 | **TUNING UP** button | 0281 |
| 13 | **WAVERANGE** button(FM,MW,LW) | 0282 |
| 14 | **VOLUME** control | 3507 |
| 15 | **BALANCE** control | 3501 |
| 16 | **Dynamic Bass Boost** button | 0299 |
| 17 | **SOURCE SELECTORS** | |
| | **TAPE** ..... | 0283 |
| | **CD/CDV** ..... | 0284 |
| | **PHONO** ..... | 0285 |
| | **TUNER** ..... | 0286 |
| | **TV/VCR** ..... | 0287 |
| 18 | **PHONES** socket | 0322 |
| 19 | **CASSETTE HOLDER deck A** | |
| 20 | **PAUSE** button **deck A** | |
| 21 | **STOP/EJECT** button **deck A** | |
| 22 | **WIND** button **deck A** | |
| 23 | **REWIND** button **deck A** | |
| 24 | **PLAY** button **deck A** | |
| 25 | **DIRECTION** button deck A | |
| 26 | **REVERSE MODE** button **deck A** | |
| 27 | **REC.MUTE** button | |
| 28 | **FE I/CrO$_2$** button | |
| 29 | **DOLBY NR** button | |
| 30 | **HIGH SPEED DUBBING** button | |
| 31 | **PAUSE** button **deck B** | |
| 32 | **STOP/EJECT** button **deck B** | |
| 33 | **WIND** button **deck B** | |
| 34 | **REWIND** button **deck B** | |
| 35 | **PLAY** button **deck B** | |
| 36 | **RECORD** button **deck B** | |
| 37 | **CASSETTE HOLDER deck B** | |
| 38 | **SURROUND SOUND** button | 0302 |

### CONNECTIONS

| | | |
|---|---|---|
| A | **LS output** front | 0323 |
| B | **LS output** rear(surround) | 0323 |
| C | **FM – antenna** socket 75 Ohm | |
| D | **GRID SELECTOR** optional | 0391 |
| E | **PHONO MD** input | 0351/0352 |
| F | **TV/AUX.** input | 0351/0352 |
| G | **CD/CDV** input | 0351/0352 |
| H | **EQUALIZER** input | 0351/0352 |
| I | **EQUALIZER** output | 0351/0352 |
| J | **LINE** output | 0351/0352 |
| K | **PHONO SUPPLY** output | 0313 |
| L | **REMOTE** RC 5 in/out socket | 0314 |
| M | **MAINS** socket | 0312 |

## SPECIFICATION

### GENERAL

| | |
|---|---|
| Mains voltage | 220 V 50/60 Hz<br>( 240 V for /05 ) |
| Power consumption | 120 W max.<br>11 W stand by |

### TUNER

| | FM | MW | LW |
|---|---|---|---|
| Tuning range | 85.5 – 108 MHz | 522 – 1611 kHz | 148 – 284 kHz |
| Aerial input | 50 Ω coaxial | | |
| IF | 10.7 MHz | 450 kHz | 450 kHz |
| Sensitivity S/N = 26dB | 4 µV | 1700 µV/m | 4000 µV/m |
| Image rejection ratio | 30 dB | 30 dB | 34 dB |

### AMPLIFIER

| | | |
|---|---|---|
| Output power (D=10 %) | 2 x 30 W rms | |
| Speaker impedance | 8 Ω | |
| Headphone | 8 – 1000 Ω | |
| Frequency response<br>( within ± 3 dB ) | 10 Hz – 20 kHz | |
| Tone control | bass | ± 10 dB at 40 Hz |
| | treble | ± 10 dB at 16 kHz |
| **DBB** | + 8 dB at 63 Hz | |

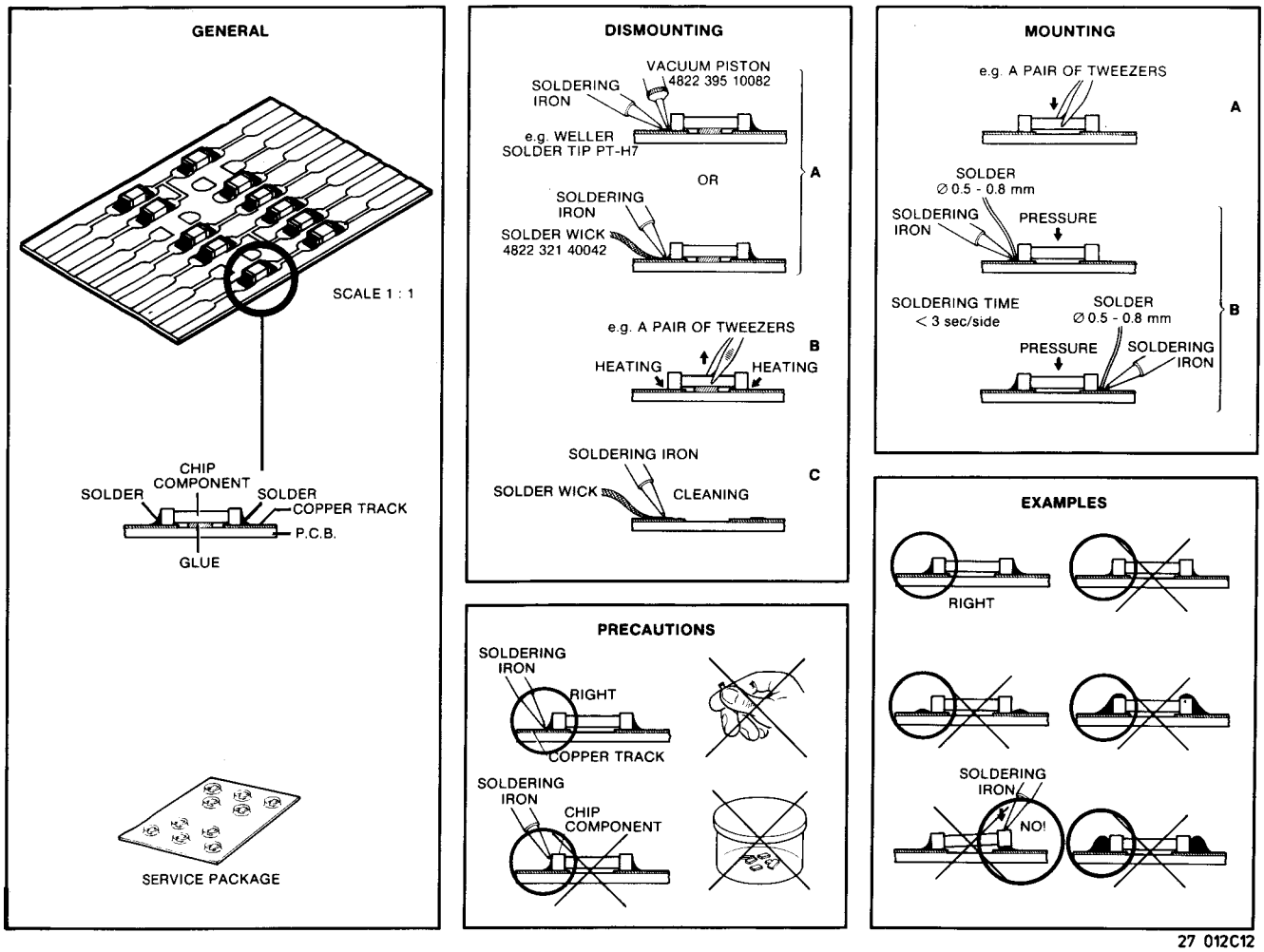
| | Equ.in | Phono | Aux/TV | CD | Tuner |
|---|---|---|---|---|---|
| Input sensitivity | 190 mV | 3.9 mV | 250 mV | 440 mV | |
| Line out voltage(nom.) | | 150 mV | 150 mV | 150 mV | 150 mV |

### CASSETTE RECORDER

| | |
|---|---|
| Tape speed | 4.76 cm/s ± 2%<br>9.5 cm/s typ. on HS dubbing |
| Wow and flutter | ≤ 0.3 % WRMS |
| Fast winding time | ≤ 140 s C60 |
| Noise reduction system | Dolby B |
| Erase/bias – system | AC 80 kHz |

| | IEC I | IEC II | IEC I Dubb. | IEC I HSD |
|---|---|---|---|---|
| Rec/Pb frequency response(–7dB) | 125–12500 Hz | 125–12500 Hz | 125–12500 Hz | |
| S/N – ratio | 50 dB | 50 dB | 48 dB | 48 dB |
| Noise reduction | 8.5 dB | 8.5 dB | | |

## HANDLING CHIP COMPONENTS




27 012C12

| | | | |
|---|---|---|---|
| Carbon film 0.2 W | 70°C | 5% | |
| Carbon film 0.33 W | 70°C | 5% | |
| Metal film 0.33 W | 70°C | 5% | |
| Carbon film 0.5 W | 70°C | 5% | |
| Carbon film 0.67 W | 70°C | 5% | |
| Carbon film 1.15 W | 70°C | 5% | |

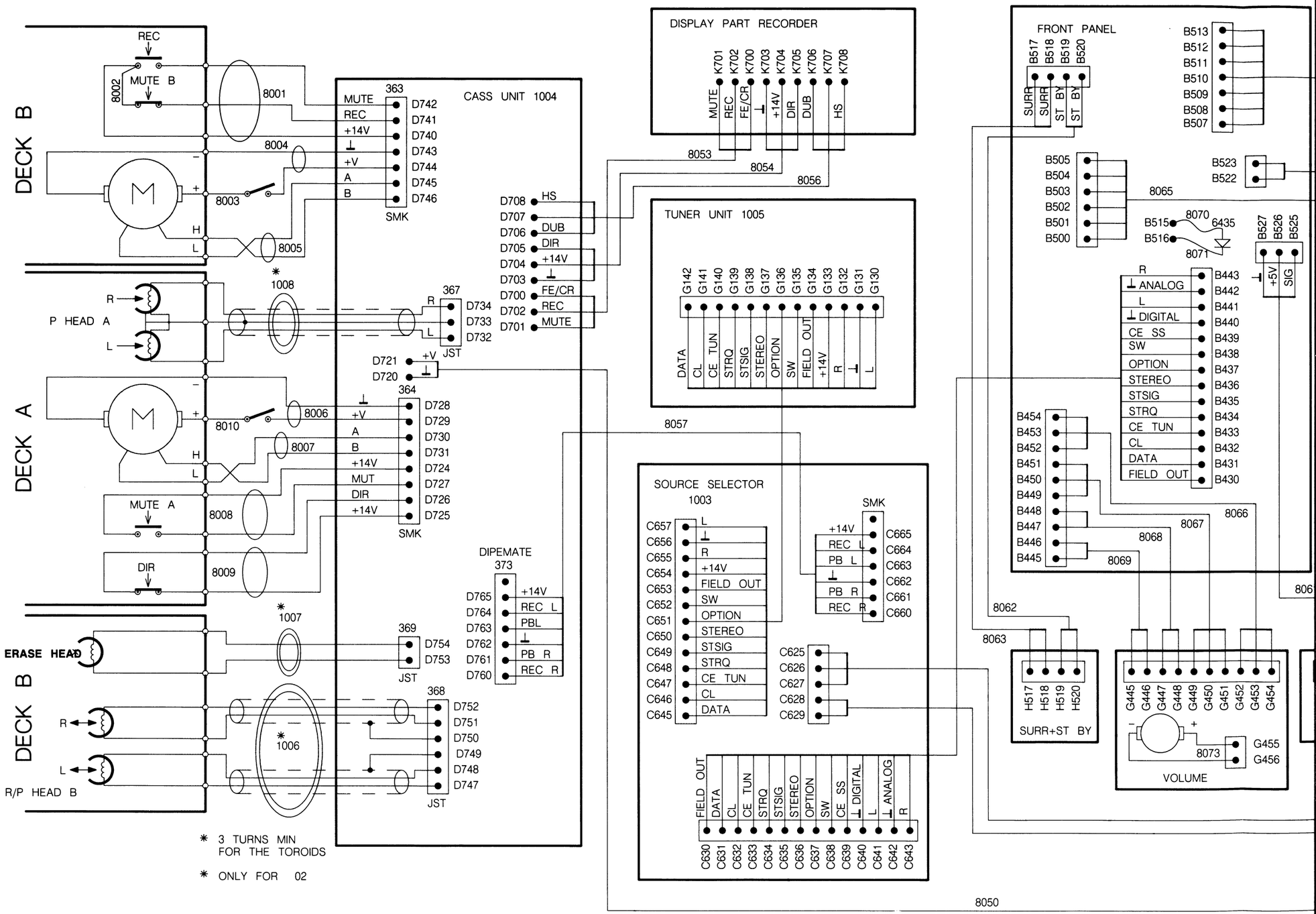
© Chip component

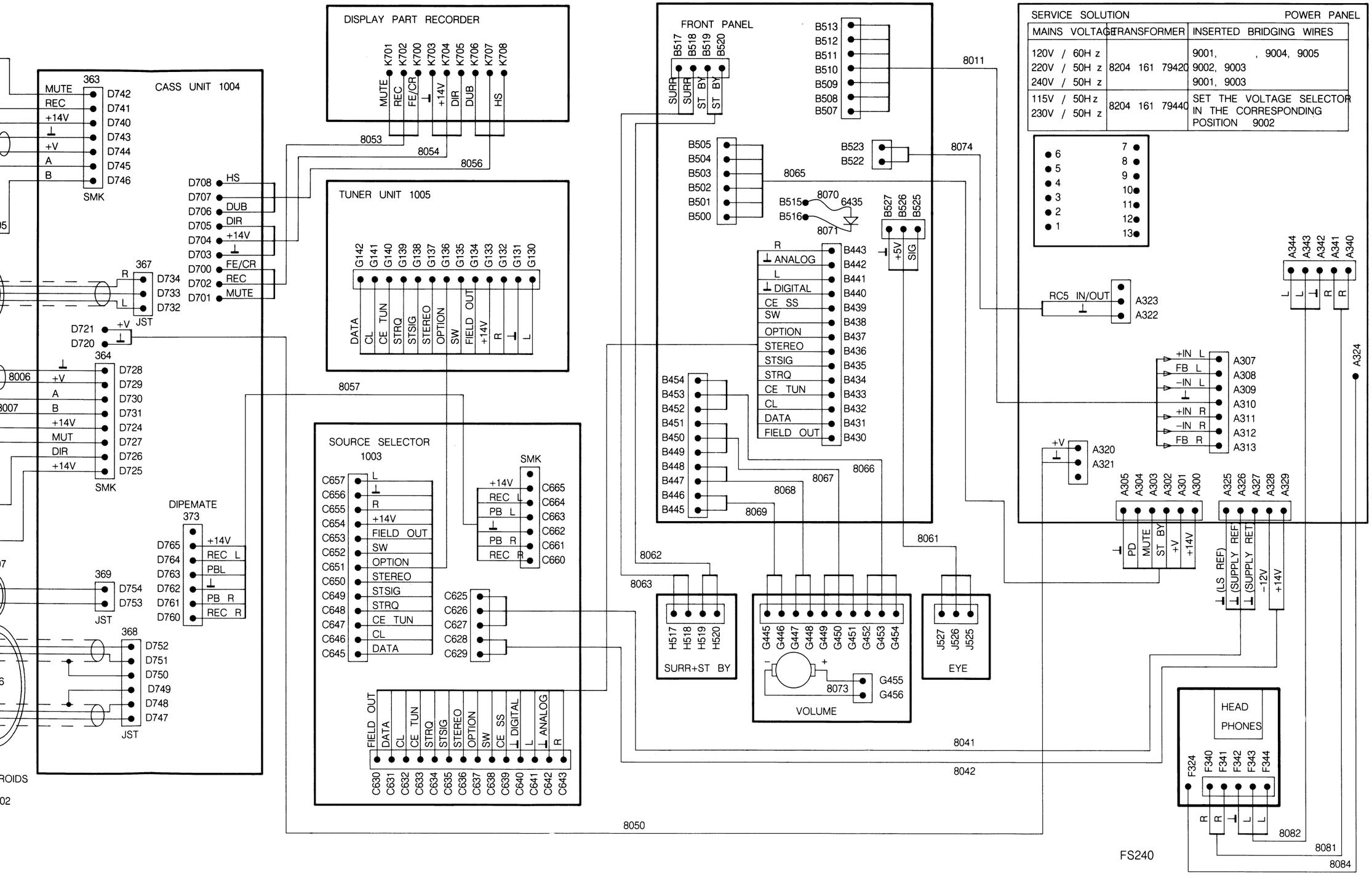
| | | |
|---|---|---|
| Ceramic plate Tuning ⩽ 120 pF NP.0 | 2% | |
| Others | −20/+80% | |
| Polyester flat foil | 10% | |
| Metalized polyester flat film | 10% | |
| Polyester flat foil small size (Mylar) | 10% | |
| Polysterene film/foil | 1% | |
| Tubular ceramic | | |
| Miniature single | | |
| Subminiature tantalum | ± 20% | |

| | |
|---|---|
| *a | = 2,5 V |
| b | = 4 V |
| c | = 6,3 V |
| d | = 10 V |
| e | = 16 V |
| f | = 25 V |
| g | = 40 V |
| h | = 63 V |
| j | = 100 V |
| l | = 125 V |
| m | = 150 V |
| n | = 160 V |
| q | = 200 V |
| r | = 250 V |
| s | = 300 V |
| t | = 350 V |
| u | = 400 V |
| v | = 500 V |
| w | = 630 V |
| x | = 1000 V |
| A | = 1,6 V |
| B | = 6 V |
| C | = 12 V |
| D | = 15 V |
| E | = 20 V |
| F | = 35 V |
| G | = 50 V |
| H | = 75 V |
| I | = 80 V |

27 037A/C

**SET WIRING DIAGRAM**




DISPLAY PART RECORDER
MUTE K701
REC K702
FE/CR K700
K703
+14V K704
DIR K705
DUB K706
HS K707
K708
8053
8054
8056
TUNER UNIT 1005
G142 G141 G140 G139 G138 G137 G136 G135 G134 G133 G132 G131 G130
DATA CL CE TUN STRQ STSIG STEREO OPTION SW FIELD OUT +14V R L
8057
CASS UNIT 1004
363
MUTE D742
REC D741
+14V D740
D743
+V D744
A D745
B D746
SMK
D708 HS
D707
D706 DUB
D705 DIR
D704 +14V
D703
D700 FE/CR
D702 REC
D701 MUTE
367
R D734
D733
L D732
JST
D721 +V
D720
364
8006 +V D728
A D729
B D730
D731
+14V D724
MUT D727
DIR D726
+14V D725
SMK
DIPEMATE
373
D765 +14V
D764 REC L
D763 PBL
D762
D761 PB R
D760 REC R
369
D754
D753
JST
368
D752
D751
D750
D749
D748
D747
JST
ROIDS
02
SOURCE SELECTOR
1003
C657 L
C656
C655 R
C654 +14V
C653 FIELD OUT
C652 SW
C651 OPTION
C650 STEREO
C649 STSIG
C648 STRQ
C647 CE TUN
C646 CL
C645 DATA
SMK
+14V C665
REC L C664
PB L C663
C662
PB R C661
REC R C660
C625
C626
C627
C628
C629
FIELD OUT DATA CL CE TUN STRQ STSIG STEREO OPTION SW CE SS DIGITAL L ANALOG R
C630 C631 C632 C633 C634 C635 C636 C637 C638 C639 C640 C641 C642 C643
FRONT PANEL
B517 B518 B519 B520
SURR SURR ST BY ST BY
B513
B512
B511
B510
B509
B508
B507
8011
B505
B504
B503
B502
B501
B500
8065
B523
B522
8074
B515 8070 6435
B516
8071
B527 B526 B525
+5V SIG
R
ANALOG B443
L B442
DIGITAL B441
CE SS B440
SW B439
OPTION B438
STEREO B437
STSIG B436
STRQ B435
CE TUN B434
CL B433
DATA B432
FIELD OUT B431
B430
B454
B453
B452
B451
B450
B449
B448
B447
B446
B445
8066
8067
8068
8069
8062
8063
8061
H517 H518 H519 H520
SURR+ST BY
G445 G446 G447 G448 G449 G450 G451 G452 G453 G454
8073
G455
G456
VOLUME
J527 J526 J525
EYE
8041
8042
8050
SERVICE SOLUTION
POWER PANEL
MAINS VOLTAGE
TRANSFORMER
INSERTED BRIDGING WIRES
120V / 60H z
220V / 50H z
240V / 50H z
8204 161 79420
9001, , 9004, 9005
9002, 9003
9001, 9003
115V / 50H z
230V / 50H z
8204 161 79440
SET THE VOLTAGE SELECTOR IN THE CORRESPONDING POSITION 9002
6 5 4 3 2 1
7 8 9 10 11 12 13
RC5 IN/OUT
A323
A322
A344 A343 A342 A341 A340
L L R R
A324
+IN L A307
FB L A308
–IN L A309
A310
+IN R A311
–IN R A312
FB R A313
+V A320
A321
A305 A304 A303 A302 A301 A300
PD MUTE ST BY +V +14V
A325 A326 A327 A328 A329
(LS REF) (SUPPLY REF) (SUPPLY RET) –12V +14V
HEAD PHONES
F324 F340 F341 F342 F343 F344
R R L L
8082
8081
8084
FS240

## TUNER: ADJUSTMENT TABLE

### FM-MW-LW

| SK | | | | | | |
|---|---|---|---|---|---|---|

### Varicap alignment

| | | | | | | |
|---|---|---|---|---|---|---|
| FM 87.5 - 108 MHz | | | 108 MHz | 5104 | | ① = 8 V |
| | | | 87.5 MHz | check | | ① = 2.7 V |
| LW 148 - 284 kHz | | | 284 kHz | 5105 | | ① = 7.8 V |
| | | | 148 kHz | check | | ① = 1.0 V |
| MW 522 - 1611 kHz | | | 1611 kHz | check* | | ① = 8.2 V |
| | | | 522 kHz | check | | ① = 2.0 V |

### FM-RF

| | | | | | | |
|---|---|---|---|---|---|---|
| FM | 87.5 MHz △f = 500 kHz | Ⓐ | 87.5 MHz | 5103 | | ⑤ max. |
| | | | | 5102** | | |
| | | | | 5101**↑ | | |
| | 108 MHz △f = 500 kHz | | 108 MHz | 2111 | | ⑤ max. |
| | | | | 2109** | | |
| | | | | 2103** | | |

### FM-IF

| | | | | | | |
|---|---|---|---|---|---|---|
| FM | 108 MHz △f = 500kHz | Ⓐ | 108 MHz | 5111 | ⑤ Symm + Linear | |

### Stereo decoder/Search sensitivity

| | | | | | | |
|---|---|---|---|---|---|---|
| FM | 98 MHz carrier | Ⓐ | 98 MHz | 3145Ø | | ⑧ 19 ± 0.05 kHz |
| | 98 MHz 12 µV | | 98 MHz | 3114 | ④ 5V 0V | |

### AM-IF

| | | | | | | |
|---|---|---|---|---|---|---|
| MW | 450 kHz △f = 10 kHz (50 Hz) | Ⓑ via 100 nF | 1611 kHz | 5108 | Symmetrical ⑤ MAX. fo | |

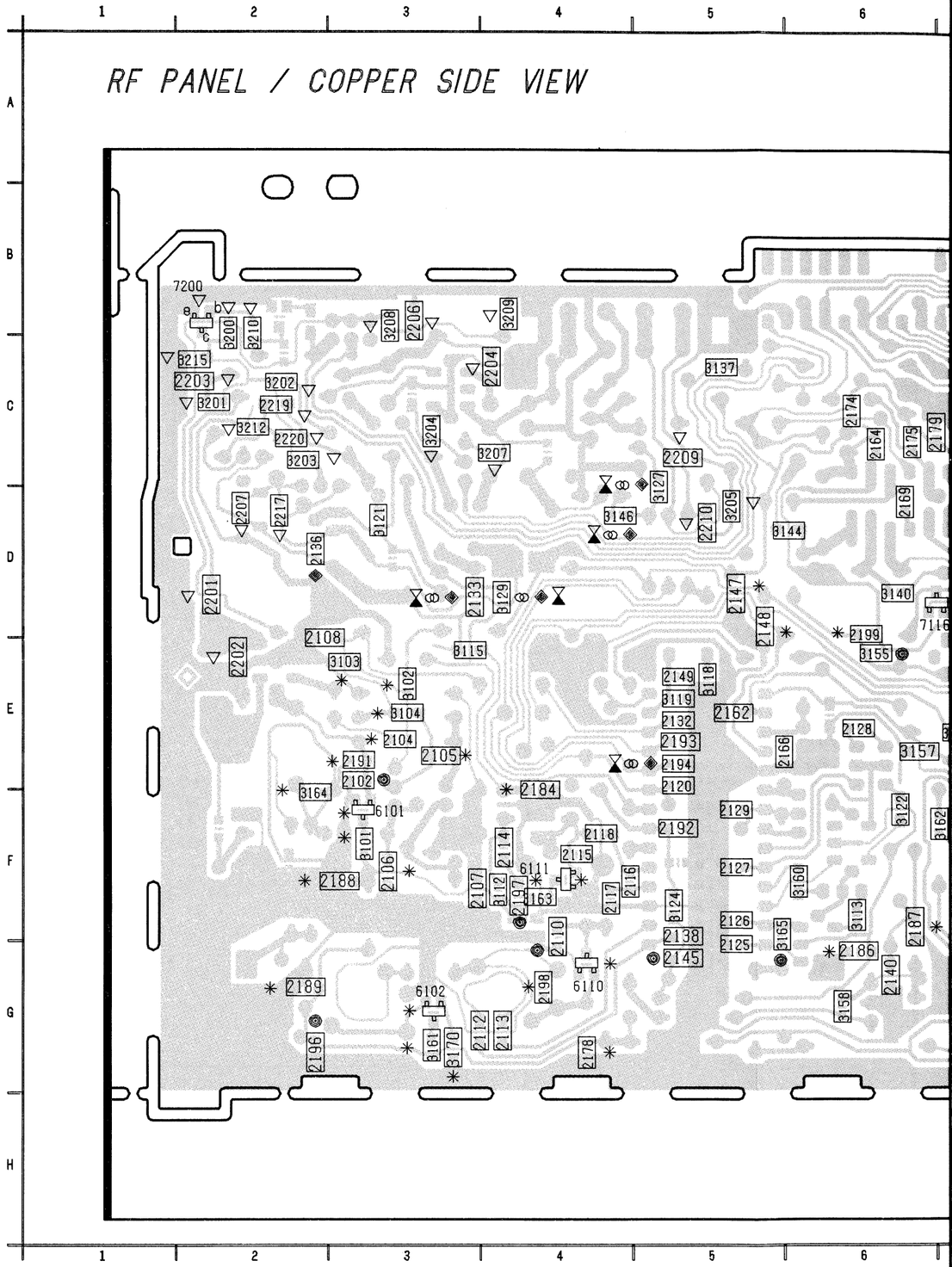
### AM-RF (begin with MW)

| | | | | | | |
|---|---|---|---|---|---|---|
| MW | 603 kHz*** | Ⓒ | 603 kHz | 5110 (MW) | | ⑤ max. |
| | 1494 kHz*** | | 1494 kHz | 2151 | | |
| LW | 155 kHz*** | Ⓒ | 155 kHz | 5110 (LW) | | ⑤ max. |
| | 275 kHz*** | | 275 kHz | 2153 | | |



## TUNER: CHIP COMPONENT LAY OUT

| | | | |
|---|---|---|---|
| 2102 | E 3 | 2207 | D 2 |
| 2104 | E 3 | 2209 | C 5 |
| 2105 | E 3 | 2210 | D 5 |
| 2106 | F 3 | 2215 | F 7 |
| 2107 | F 3 | 2217 | D 2 |
| 2108 | E 2 | 2219 | C 2 |
| 2110 | F 4 | 2220 | C 2 |
| 2112 | G 3 | 2221 | F 7 |
| 2113 | G 4 | 3101 | F 3 |
| 2114 | F 4 | 3102 | E 3 |
| 2115 | F 4 | 3103 | E 3 |
| 2116 | F 4 | 3104 | E 3 |
| 2117 | F 4 | 3112 | F 4 |
| 2118 | F 4 | 3113 | F 6 |
| 2120 | E 5 | 3115 | E 3 |
| 2124 | D 7 | 3118 | E 5 |
| 2125 | G 5 | 3119 | E 5 |
| 2126 | F 5 | 3121 | D 3 |
| 2127 | F 5 | 3122 | F 6 |
| 2128 | E 6 | 3124 | F 5 |
| 2129 | F 5 | 3127 | C 5 |
| 2132 | E 5 | 3129 | D 4 |
| 2133 | D 3 | 3130 | E 7 |
| 2136 | D 2 | 3133 | E 8 |
| 2138 | F 5 | 3136 | G 8 |
| 2140 | G 6 | 3137 | C 5 |
| 2142 | F 7 | 3138 | G 8 |
| 2143 | F 7 | 3140 | D 6 |
| 2145 | G 5 | 3144 | D 6 |
| 2147 | D 5 | 3146 | D 4 |
| 2148 | D 5 | 3155 | E 6 |
| 2149 | E 5 | 3156 | F 8 |
| 2156 | G 8 | 3157 | E 6 |
| 2157 | G 7 | 3158 | G 6 |
| 2159 | G 8 | 3160 | F 6 |
| 2160 | E 8 | 3161 | G 3 |
| 2162 | E 5 | 3162 | F 7 |
| 2164 | C 6 | 3163 | F 4 |
| 2166 | E 5 | 3164 | F 2 |
| 2169 | D 6 | 3165 | F 5 |
| 2171 | G 8 | 3170 | G 3 |
| 2174 | C 6 | 3172 | D 7 |
| 2175 | C 6 | 3200 | B 2 |
| 2178 | G 4 | 3201 | C 2 |
| 2179 | C 6 | 3202 | C 2 |
| 2180 | E 7 | 3203 | C 2 |
| 2181 | E 7 | 3204 | C 3 |
| 2183 | F 7 | 3205 | D 5 |
| 2184 | F 4 | 3207 | C 4 |
| 2185 | E 7 | 3208 | B 3 |
| 2186 | G 6 | 3209 | B 4 |
| 2187 | F 6 | 3210 | B 2 |
| 2188 | F 3 | 3212 | C 2 |
| 2189 | G 2 | 3215 | C 2 |
| 2191 | E 3 | 3221 | F 7 |
| 2192 | F 5 | 6101 | F 3 |
| 2193 | E 5 | 6102 | G 3 |
| 2194 | E 5 | 6110 | G 4 |
| 2195 | E 8 | 6111 | F 4 |
| 2196 | G 2 | 7111 | E 7 |
| 2197 | F 4 | 7113 | G 7 |
| 2198 | G 4 | 7114 | G 7 |
| 2199 | D 6 | 7115 | F 7 |
| 2201 | D 2 | 7116 | D 6 |
| 2202 | E 2 | 7200 | B 2 |
| 2203 | C 2 | | |
| 2204 | C 4 | | |
| 2206 | B 3 | | |

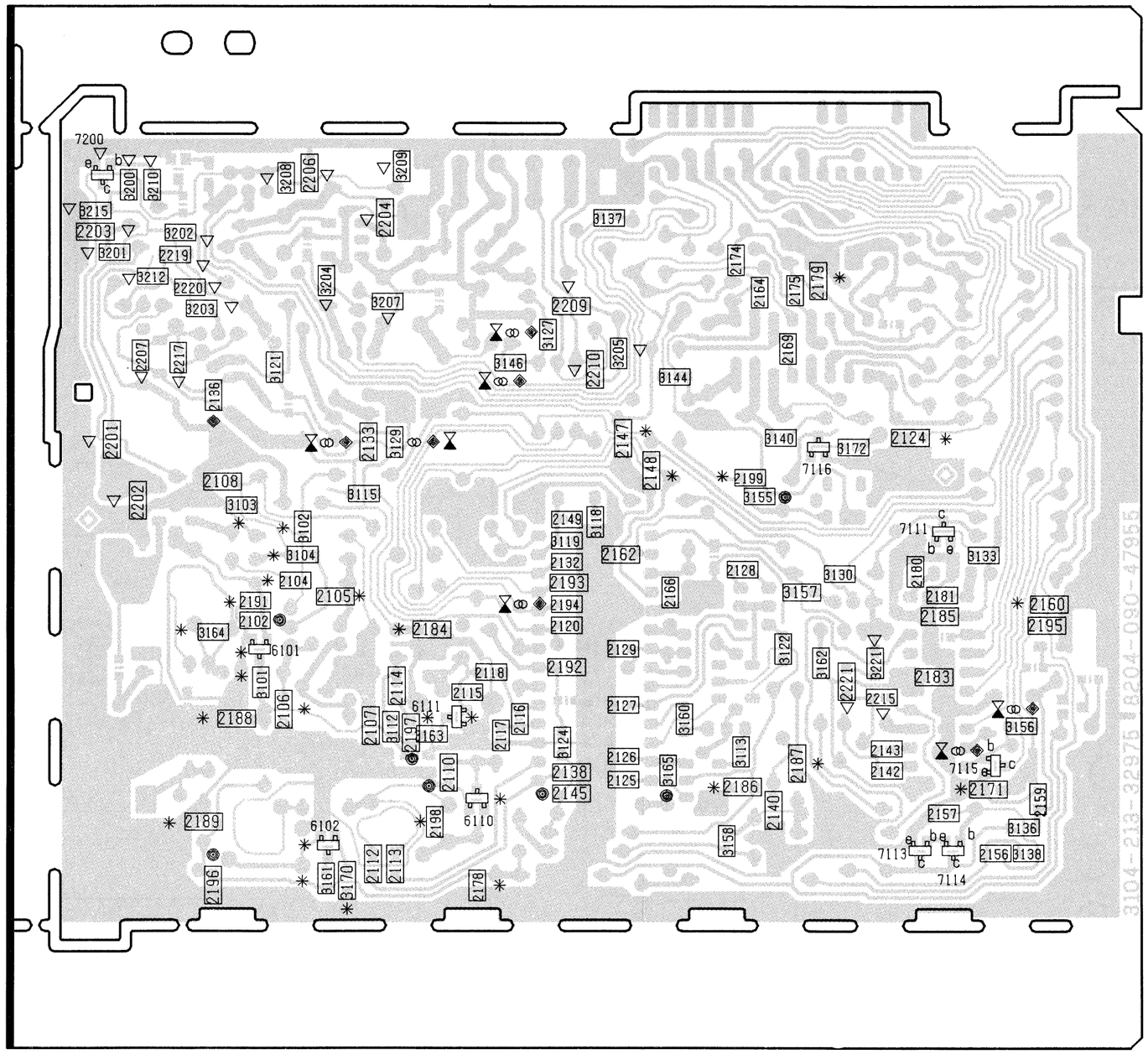



*** Mod 1 kHz 30 % AM
** For /02 only
↑ Adjust core to approximately 3 mm below top edge of coil for all units except /02
Ø Ground pin 9 of 7106 (stereo dec)
* If Vtune > 8,5 V readjust 5105 at 1611 kHz to Vtune = 8,5 V and check if Vtune ⩾ 0,7 V at 148 kHz.
↕ Repeat -Herhalen - Répéter - Wiederholen - Ricomminciare - Repetera - Gentage - Gjentagelse - Toista

## TUNER: CHIP COMPONENT LAY OUT

| | | | | | |
|---|---|---|---|---|---|
| 2102 | E 3 | 2207 | D 2 | | |
| 2104 | E 3 | 2209 | C 5 | | |
| 2105 | E 3 | 2210 | D 5 | | |
| 2106 | F 3 | 2215 | F 7 | | |
| 2107 | F 3 | 2217 | D 2 | | |
| 2108 | E 2 | 2219 | C 2 | | |
| 2110 | F 4 | 2220 | C 2 | | |
| 2112 | G 3 | 2221 | F 7 | | |
| 2113 | G 4 | 3101 | F 3 | | |
| 2114 | F 4 | 3102 | E 3 | | |
| 2115 | F 4 | 3103 | E 3 | | |
| 2116 | F 4 | 3104 | E 3 | | |
| 2117 | F 4 | 3112 | F 4 | | |
| 2118 | F 4 | 3113 | F 6 | | |
| 2120 | E 5 | 3115 | E 3 | | |
| 2124 | D 7 | 3118 | E 5 | | |
| 2125 | G 5 | 3119 | E 5 | | |
| 2126 | F 5 | 3121 | D 3 | | |
| 2127 | F 5 | 3122 | F 6 | | |
| 2128 | E 6 | 3124 | F 5 | | |
| 2129 | F 5 | 3127 | C 5 | | |
| 2132 | E 5 | 3129 | D 4 | | |
| 2133 | D 3 | 3130 | E 7 | | |
| 2136 | D 2 | 3133 | E 8 | | |
| 2138 | F 5 | 3136 | G 8 | | |
| 2140 | G 6 | 3137 | C 5 | | |
| 2142 | F 7 | 3138 | G 8 | | |
| 2143 | F 7 | 3140 | D 6 | | |
| 2145 | G 5 | 3144 | D 6 | | |
| 2147 | D 5 | 3146 | D 4 | | |
| 2148 | D 5 | 3155 | E 6 | | |
| 2149 | E 5 | 3156 | F 8 | | |
| 2156 | G 8 | 3157 | E 6 | | |
| 2157 | G 7 | 3158 | G 6 | | |
| 2159 | G 8 | 3160 | F 6 | | |
| 2160 | E 8 | 3161 | G 3 | | |
| 2162 | E 5 | 3162 | F 7 | | |
| 2164 | C 6 | 3163 | F 4 | | |
| 2166 | E 5 | 3164 | F 2 | | |
| 2169 | D 6 | 3165 | F 5 | | |
| 2171 | G 8 | 3170 | G 3 | | |
| 2174 | C 6 | 3172 | D 7 | | |
| 2175 | C 6 | 3200 | B 2 | | |
| 2178 | G 4 | 3201 | C 2 | | |
| 2179 | C 6 | 3202 | C 2 | | |
| 2180 | E 7 | 3203 | C 2 | | |
| 2181 | E 7 | 3204 | C 3 | | |
| 2183 | F 7 | 3205 | D 5 | | |
| 2184 | F 4 | 3207 | C 4 | | |
| 2185 | E 7 | 3208 | B 3 | | |
| 2186 | G 6 | 3209 | B 4 | | |
| 2187 | F 6 | 3210 | B 2 | | |
| 2188 | F 3 | 3212 | C 2 | | |
| 2189 | G 2 | 3215 | C 2 | | |
| 2191 | E 3 | 3221 | F 7 | | |
| 2192 | F 5 | 6101 | F 3 | | |
| 2193 | E 5 | 6102 | G 3 | | |
| 2194 | E 5 | 6110 | G 4 | | |
| 2195 | E 8 | 6111 | F 4 | | |
| 2196 | G 2 | 7111 | E 7 | | |
| 2197 | F 4 | 7113 | G 7 | | |
| 2198 | G 4 | 7114 | G 7 | | |
| 2199 | D 6 | 7115 | F 7 | | |
| 2201 | D 2 | 7116 | D 6 | | |
| 2202 | E 2 | 7200 | B 2 | | |
| 2203 | C 2 | | | | |
| 2204 | C 4 | | | | |
| 2206 | B 3 | | | | |

## RF PANEL / COPPER SIDE VIEW




3104-217-XXXXO ( /40 )

⧗ : NOT FOR /40

✙ : ONLY FOR /40

3104-217-XXXXO ( /47 )

⊛ : NOT FOR /47

# : ONLY FOR /47

3104-217-23110 ( /01 )

◈ : NOT FOR /31 AND /21

▽ : ONLY FOR /31 AND /21

3104-217-23120 ( /02 /08 )
3104-217-22500 ( /00 /05 )

◉ : NOT FOR /32

✳ : ONLY FOR /32

*** Mod 1 kHz 30 % AM
** For /02 only
↑ Adjust core to approximately 3 mm below top edge of coil for all units except /02
Ø Ground pin 9 of 7106 (stereo dec)
* If Vtune > 8,5 V readjust 5105 at 1611 kHz to Vtune = 8,5 V and check if Vtune ⩾ 0,7 V at 148 kHz.
↕ Repeat -Herhalen - Répéter - Wiederholen - Ricomminciare - Repetera - Gentage - Gjentagelse - Toista

## Service test program TMP47C421AF

With the service test program of the µP following parts can be tested:
EEROM
RAM
Display
I/O-parts

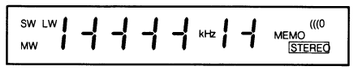
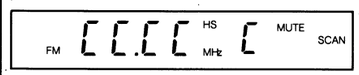
| Operating sequence | Display check | Remark |
|---|---|---|
| Hold 'memory'- and 'preset up' - key depressed during switching on (plugging in mains cord) the set to get into test program. | pattern 1<br>  | Before pattern one will be showed EEROM is automatically loaded with frequencies as shown in table 3. |
| Press any key | pattern 2<br>  | RAM-test<br>If failure in RAM is detected, next step will not be reached<br>⇒ Exchange µP. |
| Press any key | pattern 3<br> | Before switching over from pattern 3 to key detection "timer interrupt" check will be carried out automatically. If one of them is detected wrong pattern 3 remains on display.<br>⇒ Exchange µP |
| Key detection | number on display | |
| Press Power<br>Tuner<br>CD/CDV<br>Phono<br>Tape<br>TV/VCR<br>Auto progr.<br>Auto scan<br>Mono<br>Memory<br>Preset down<br>Preset up<br>Wave band<br>Tuning down<br>Tuning up | 0 (((0<br>1 (((0<br>2 (((0<br>3 (((0<br>4 (((0<br>5 (((0<br>6 (((0<br>7 (((0<br>8 (((0<br>9 (((0<br>10 (((0<br>11 (((0<br>13 (((0<br>14 (((0<br>15 (((0 | Also, RC5 interrupt will be tested automatically. If it is detected wrong blank display remains. ⇒ Check if pin 19 of µP is high. If yes, exchange µP. If no check remote circuit. |
| To get back in normal working mode O "reset" has to be given by switching off the set (plugging off mains cord) | | |

table 1

## Test Remote Functions

In "Key detection part" of the service testprogram for TMP47C421AF also the remote-functions can be tested. If a source key will be depressed the source will also be selected and the corresponding LED lights up.

Numbers for Remote Keys:

| Key depressed | Number on display |
|---|---|
| preset 0 | 0 |
| preset 1 | 1 |
| preset 2 | 2 |
| preset 3 | 3 |
| preset 4 | 4 |
| preset 5 | 5 |
| preset 6 | 6 |
| preset 7 | 7 |
| preset 8 | 8 |
| preset 9 | 9 |
| search down | 14 |
| search up | 15 |
| stand by | 16 |
| volume up | 17 |
| volume down | 18 |
| clear (+ 10) | 19 |
| **Source selection** | **Display shows** |
| CD | CD |
| Cassette | CASS |
| Phono | PHO |
| TV/Aux. | Add |
| Tuner | display is blanked |
| To get back in normal working mode O "reset" has to be given by switching off the set (plugging off mains cord). | |

Table 2

## EEROM-loading

During switching over to the service test program of TMP47C421AF (see table 1) the EEROM is automatically loaded with the following frequencies:

| preset | frequency |
|---|---|
| | **FM** |
| last tuned | 93,70 |
| 0 | 87,50 |
| 1 | 93.70 |
| 2 | 97.00 |
| 3 | 98.00 |
| 4 | 99.00 |
| 5 | 108.00 |
| | **MW** |
| 6 | 522 |
| 7 | 567 |
| 8 | 603 |
| 9 | 1278 |
| 10 | 1494 |
| 11 | 1611 |
| | **LW** |
| 12 | 148 |
| 13 | 155 |
| 14 | 275 |
| 15 | 284 |
| 16-19 | 87,50 |

Table 3

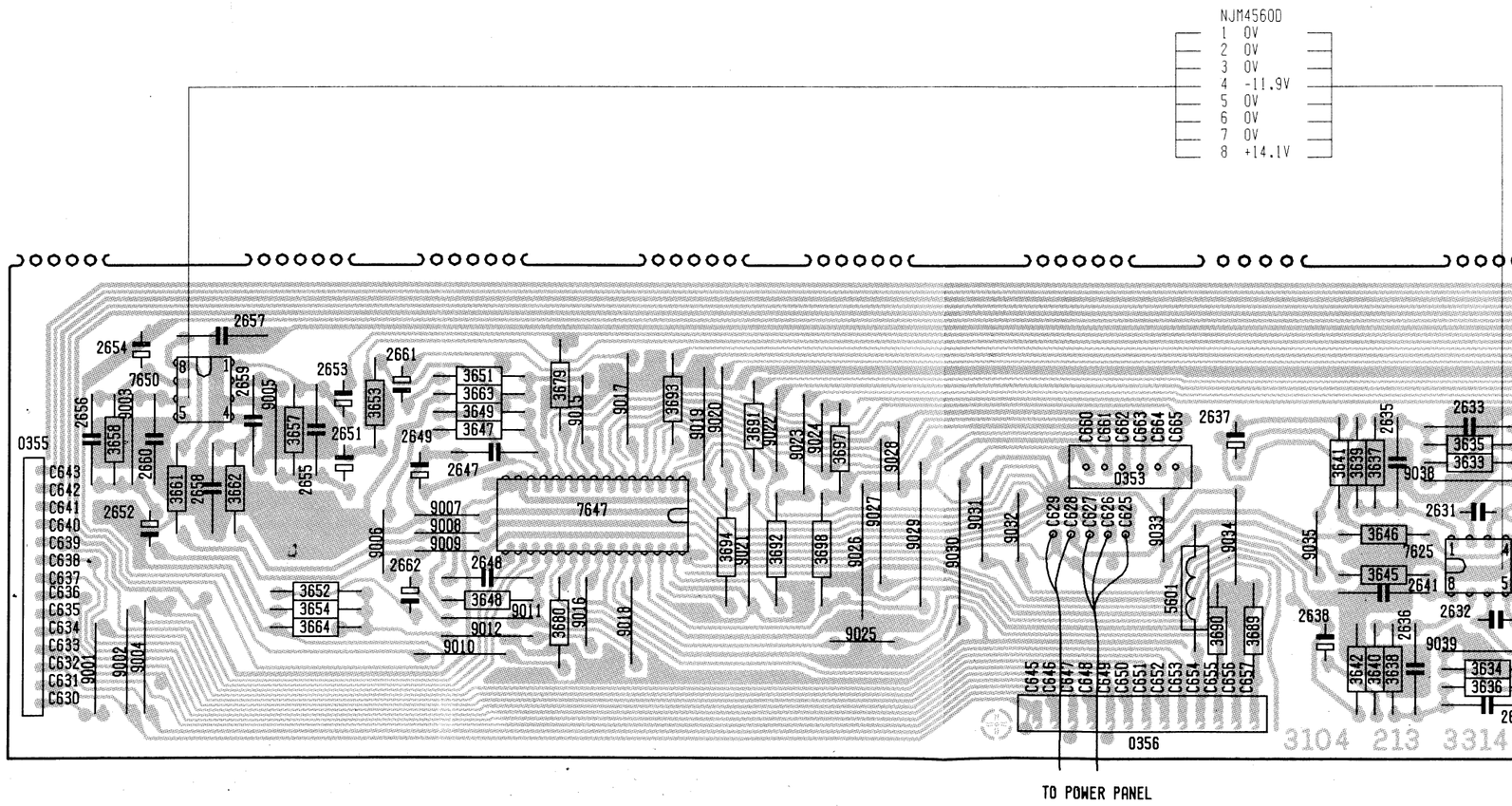
For checking the frequencies reset the system by switching off the set (plugging off mains cord).

## SOURCE SELECTOR COMPONENT LAY OUT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0351 | E15 | 2628 | H13 | 2636 | H11 | 2648 | G 5 | 2657 | E 3 | 3627 | G13 | 3637 | F11 | 3645 | G11 | 3654 | G 4 | 3680 | H 5 | 3688 | C13 | 3696 | E13 | 9002 | H 2 | 9010 | H 5 | 9020 | F 6 | 9028 | F 8 | 9038 | F11 | C625 | G 9 | C633 | H 2 | C641 | G 2 | C650 | H 9 | C660 | F 9 |
| 0352 | D15 | 2629 | G13 | 2637 | F10 | 2649 | F 4 | 2658 | G 3 | 3628 | G13 | 3638 | H11 | 3646 | G11 | 3657 | F 3 | 3681 | F13 | 3689 | H10 | 3697 | F 7 | 9003 | F 2 | 9011 | G 5 | 9021 | G 7 | 9029 | G 8 | 9039 | H12 | C626 | G 9 | C634 | H 2 | C642 | G 2 | C651 | H 9 | C661 | F 9 |
| 0353 | G 9 | 2630 | G13 | 2638 | G11 | 2651 | F 4 | 2659 | F 3 | 3629 | G12 | 3639 | F11 | 3647 | F 5 | 3658 | F 2 | 3682 | F13 | 3690 | H10 | 3698 | G 7 | 9004 | H 2 | 9012 | H 5 | 9022 | F 7 | 9030 | G 8 | 9044 | D13 | C627 | G 9 | C635 | G 2 | C643 | F 2 | C652 | H 9 | C662 | F 9 |
| 0355 | F 2 | 2631 | G11 | 2639 | F12 | 2652 | G 2 | 2660 | F 2 | 3630 | G12 | 3640 | H11 | 3648 | G 5 | 3661 | G 3 | 3683 | C13 | 3691 | F 7 | 5601 | G10 | 9005 | F 3 | 9015 | F 5 | 9023 | F 7 | 9031 | G 8 | 9045 | B13 | C628 | G 9 | C636 | G 2 | C645 | H 9 | C653 | H10 | C663 | F 9 |
| 0356 | H 9 | 2632 | G12 | 2640 | H12 | 2653 | F 4 | 2661 | F 4 | 3633 | F12 | 3641 | F11 | 3649 | F 5 | 3662 | G 3 | 3684 | C13 | 3692 | G 7 | 7625 | G11 | 9006 | G 4 | 9016 | G 5 | 9024 | F 7 | 9032 | G 8 | 9046 | D13 | C629 | G 9 | C637 | G 2 | C646 | H 9 | C654 | H10 | C664 | F 9 |
| 2625 | F13 | 2633 | F12 | 2641 | G11 | 2654 | F 2 | 2662 | G 4 | 3634 | H12 | 3642 | H11 | 3651 | F 5 | 3663 | G 4 | 3685 | D13 | 3693 | F 6 | 7647 | G 6 | 9007 | G 4 | 9017 | F 6 | 9025 | H 7 | 9033 | G10 | 9047 | D13 | C630 | H 2 | C638 | G 2 | C647 | H 9 | C655 | H10 | C665 | F10 |
| 2626 | G13 | 2634 | H12 | 2642 | G13 | 2655 | G 4 | 3625 | F13 | 3635 | F12 | 3643 | G13 | 3652 | G 4 | 3664 | H 4 | 3686 | D13 | 3694 | G 6 | 7650 | F 2 | 9008 | G 4 | 9018 | H 6 | 9026 | G 7 | 9034 | G10 | 9048 | D13 | C631 | H 2 | C639 | G 2 | C648 | H 9 | C656 | H10 | | |
| 2627 | F13 | 2635 | F11 | 2647 | F 5 | 2656 | F 2 | 3626 | G13 | 3636 | H12 | 3644 | G13 | 3653 | F 4 | 3679 | F 5 | 3687 | C13 | 3695 | E13 | 9001 | H 2 | 9009 | G 4 | 9019 | F 6 | 9027 | G 8 | 9035 | G11 | 9049 | D13 | C632 | H 2 | C640 | G 2 | C649 | H 9 | C657 | H10 | | |

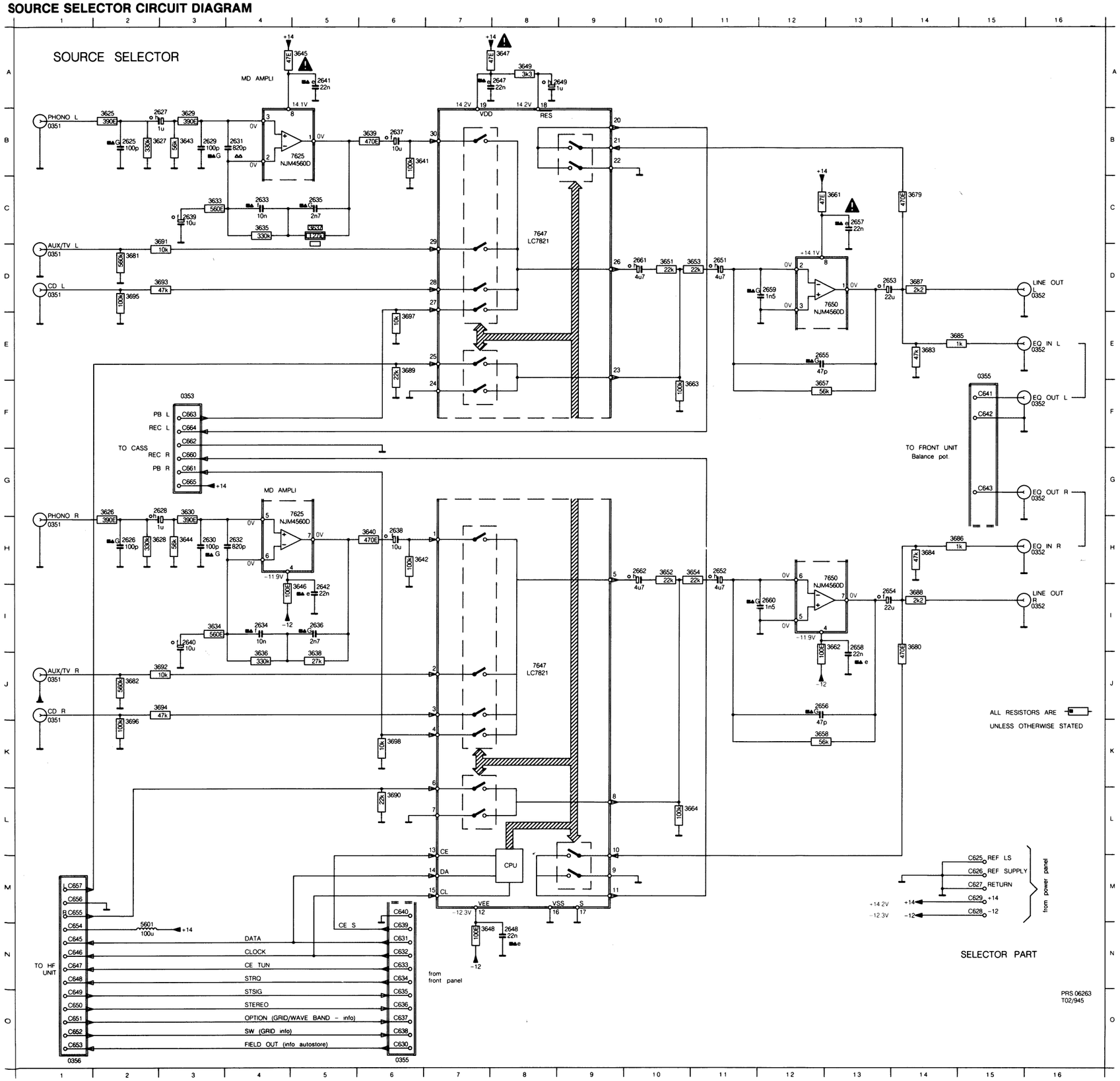
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

*SELECTOR PANEL / COPPER SIDE VIEW*




A B C D E F G H I

## SOURCE SELECTOR CIRCUIT DIAGRAM




| | | |
|---|---|---|
| 2625 | B | 2 |
| 2626 | H | 2 |
| 2627 | B | 3 |
| 2628 | G | 3 |
| 2629 | B | 3 |
| 2630 | H | 3 |
| 2631 | B | 4 |
| 2632 | H | 4 |
| 2633 | C | 4 |
| 2634 | I | 4 |
| 2635 | C | 5 |
| 2636 | I | 5 |
| 2637 | B | 6 |
| 2638 | H | 6 |
| 2639 | C | 3 |
| 2640 | I | 3 |
| 2641 | A | 5 |
| 2642 | I | 5 |
| 2647 | A | 8 |
| 2648 | N | 8 |
| 2649 | A | 9 |
| 2651 | D | 11 |
| 2652 | H | 11 |
| 2653 | D | 13 |
| 2654 | I | 13 |
| 2655 | E | 12 |
| 2656 | J | 12 |
| 2657 | C | 13 |
| 2658 | I | 13 |
| 2659 | D | 12 |
| 2660 | I | 12 |
| 2661 | D | 10 |
| 2662 | H | 10 |
| 3625 | B | 2 |
| 3626 | G | 2 |
| 3627 | B | 3 |
| 3628 | H | 3 |
| 3629 | B | 3 |
| 3630 | G | 3 |
| 3633 | C | 3 |
| 3634 | I | 3 |
| 3635 | C | 4 |
| 3636 | J | 4 |
| 3637 | C | 5 |
| 3638 | J | 5 |
| 3639 | B | 6 |
| 3640 | H | 6 |
| 3641 | B | 7 |
| 3642 | H | 7 |
| 3643 | B | 3 |
| 3644 | H | 3 |
| 3645 | A | 5 |
| 3646 | I | 5 |
| 3647 | A | 8 |
| 3648 | N | 8 |
| 3649 | A | 8 |
| 3651 | D | 10 |
| 3652 | H | 10 |
| 3653 | D | 11 |
| 3654 | H | 11 |
| 3657 | F | 12 |
| 3658 | K | 12 |
| 3661 | C | 13 |
| 3662 | I | 13 |
| 3663 | F | 11 |
| 3664 | L | 11 |
| 3679 | C | 14 |
| 3680 | I | 14 |
| 3681 | D | 2 |
| 3682 | J | 2 |
| 3683 | E | 14 |
| 3684 | H | 14 |
| 3685 | E | 14 |
| 3686 | H | 14 |
| 3687 | D | 14 |
| 3688 | I | 14 |
| 3689 | E | 6 |
| 3690 | L | 6 |
| 3691 | C | 3 |
| 3692 | J | 3 |
| 3693 | D | 3 |
| 3694 | J | 3 |
| 3695 | D | 2 |
| 3696 | K | 2 |
| 3697 | E | 6 |
| 3698 | K | 6 |
| 5601 | N | 2 |
| 7625 | B | 5 |
| 7625 | G | 5 |
| 7647 | C | 8 |
| 7647 | J | 8 |
| 7650 | D | 13 |
| 7650 | H | 13 |

## COMPONENT LAY OUT POWER UNIT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | G 6 | 0321 | C 2 | 2300 | G10 | 2308 | G 6 | 2331 | D 6 | 2347 | D 7 | 2355 | E 7 | 2366 | C 3 | 2374 | C 4 | 3305 | C 3 | 3331 | D 7 | 3369 | E 8 | 3377 | E 7 | 3385 | E 8 | 3395 | C12 | 6301 | G10 | 6383 | F 5 | 7334 | D 8 | 9011 | E 9 | 9019 | G 5 | A300 | D 2 | A309 | E 6 | A323 | H10 | A341 | D10 | F343 | G 1 |
| 0312 | B14 | 0322 | G 5 | 2301 | G10 | 2320 | E11 | 2332 | D 6 | 2348 | C 5 | 2356 | D 5 | 2367 | D 8 | 2381 | D11 | 3306 | C 3 | 3332 | D 6 | 3370 | C 4 | 3378 | D 4 | 3387 | C 8 | 3396 | G 5 | 6302 | G10 | 7304 | C 3 | 9002 | E16 | 9012 | C 8 | 9021 | E 5 | A301 | D 2 | A310 | E 6 | A324 | E 2 | A342 | D10 | F344 | H 1 |
| 0313 | B12 | 0323 | B10 | 2302 | G10 | 2321 | F11 | 2333 | D 7 | 2349 | E 8 | 2357 | E 7 | 2368 | D 5 | 2382 | C 9 | 3307 | D 3 | 3333 | D 7 | 3371 | D 7 | 3379 | E 8 | 3388 | C 8 | 3397 | G 6 | 6303 | H10 | 7305 | F 5 | 9003 | C15 | 9013 | E 8 | 9022 | D 4 | A302 | E 2 | A311 | E 5 | A325 | D 2 | A343 | D10 | | |
| 0314 | B13 | 1300 | G10 | 2303 | G 8 | 2322 | D10 | 2334 | C 6 | 2350 | D 3 | 2358 | D 5 | 2369 | D 7 | 2383 | G 2 | 3308 | F 4 | 3334 | D 6 | 3372 | C 4 | 3380 | D 4 | 3389 | D 9 | 3398 | E 6 | 6305 | D 3 | 7306 | E 4 | 9006 | D12 | 9014 | C 8 | 9023 | E 4 | A303 | E 2 | A312 | E 5 | A326 | D 2 | A344 | D10 | | |
| 0315 | E 2 | 1301 | F10 | 2304 | D 3 | 2323 | F 9 | 2335 | D 7 | 2351 | C 8 | 2359 | D 8 | 2370 | C 4 | 2384 | G 2 | 3309 | F 5 | 3335 | F 2 | 3373 | D 7 | 3381 | D 8 | 3391 | H 2 | 5001 | F13 | 6320 | F10 | 7307 | F 3 | 9007 | C10 | 9015 | C 7 | 9024 | C 7 | A304 | E 2 | A313 | E 5 | A327 | C 2 | F324 | F 2 | | |
| 0316 | E 6 | 1302 | E10 | 2305 | C 3 | 2324 | G 7 | 2336 | C 6 | 2352 | D 5 | 2360 | C 6 | 2371 | C 7 | 2385 | E 4 | 3323 | F 7 | 3336 | G 2 | 3374 | D 6 | 3382 | C 8 | 3392 | G 2 | 5081 | B 8 | 6321 | F 6 | 7331 | C 7 | 9008 | C10 | 9016 | C 7 | 9025 | D10 | A305 | E 2 | A320 | H 6 | A328 | C 2 | F340 | G 1 | | |
| 0319 | G 6 | 1303 | F10 | 2306 | C 2 | 2325 | E 3 | 2337 | D 7 | 2353 | E 7 | 2361 | C 9 | 2372 | D 5 | 3301 | C13 | 3324 | D 3 | 3367 | D 8 | 3375 | E 7 | 3383 | D 9 | 3393 | H 2 | 5082 | C 9 | 6322 | E 3 | 7332 | C 5 | 9009 | D10 | 9017 | C 6 | 9030 | E 2 | A307 | E 6 | A321 | H 6 | A329 | C 2 | F341 | G 1 | | |
| 0320 | H10 | 1304 | H 7 | 2307 | D 2 | 2330 | E 8 | 2338 | C 6 | 2354 | D 4 | 2365 | D 8 | 2373 | D 8 | 3302 | C13 | 3325 | D 3 | 3368 | C 5 | 3376 | D 4 | 3384 | D 9 | 3394 | G 2 | 6300 | G10 | 6381 | F 4 | 7333 | D 9 | 9010 | E10 | 9018 | C 5 | 9099 | C 5 | A308 | E 6 | A322 | H10 | A340 | D10 | F342 | G 1 | | |

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

### POWER PANEL / COPPER SIDE VIEW

* ONLY FOR FTZ UNITS /02 /08

1 = 0V
2 = -17.5V
3 = -17.5V
4 = -24V
5 = 0V
6 = 24V
7 = 16V
8 = 0V
9 = 0V

0321 0315 0316 0322 0323 0312 0313 0314 0319 1304 5001 TRAFO 9003 9002 9006 9007 9008 9009 9010 9011 9012 9013 9014 9015 9016 9017 9018 9019 9021 9022 9023 9025 9030 9099 7304 7305 7306 7307 7331 7332 7333 7334 6300 6301 6302 6303 6305 6321 6322 6381 6383 1300 1301 1302 1303 1304 2300 2301 2302 2303 2320 2321 2322 2323 2324 2330 2331 2332 2333 2334 2335 2336 2337 2338 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2381 2382 2383 2384 2385 3301 3302 3303 3305 3306 3307 3308 3309 3310 3311 3312 3313 3314 3315 3316 3317 3318 3319 3320 3321 3322 3323 3324 3325 3326 3327 3328 3329 3330 3331 3332 3333 3334 3335 3336 3337 3338 3339 3340 3341 3342 3343 3344 3345 3346 3347 3348 3349 3350 3351 3352 3353 3354 3355 3356 3357 3358 3359 3360 3361 3362 3363 3364 3365 3366 3367 3368 3369 3370 3371 3372 3373 3374 3375 3376 3377 3378 3379 3380 3381 3382 3383 3384 3385 3386 3387 3388 3389 3390 3391 3392 3393 3394 3395 3396 3397 3398 A300 A301 A302 A303 A304 A305 A307 A308 A309 A310 A311 A312 A313 A320 A321 A322 A323 A324 A325 A326 A327 A328 A329 A340 A341 A342 A343 A344 F324 F340 F341 F342 F343 F344 +14V +12V LREF LLS +V ST.BY MUTE PD 24V 15.6V 14.2V 12.8V -11.6V -12.4V 0.7V -17.5V -24V 18.5V (AC) 10V (AC) 12.5V

## POWER UNIT CIRCUIT DIAGRAM

POWER UNIT

FROM FRONT PANEL

+ INPUT A307 — 2331 1u — 3333 1k — 3331 68k — 2333 100p — 2335 220p — 7331 TDA1514-N — 2349 22u — 3367 1E — 2351 100n — 3373 470R — 2337 100p — 2371 470p — 2367 100n — 2359 10n — 3387 1k — P

- INPUT A309 — 2355 10u — 3375 56k — 3377 1k — 3379 12k — 2357 100u

FEEDBACK A308

EARTH A310 — 2330 22n

+ INPUT A311 — 2332 1u — 3334 1k — 3332 68k — 2334 100p — 2336 220p — 7332 TDA1514-N — 2350 22u — 3368 1E — 2352 100n — 3372 470R — 2370 470p — 2348 22u — 2366 100n — 2337 100p — 3374 470R — 2372 470p — 2368 100n — 2360 10n — 3388 1k — P

- INPUT A312 — 2356 10u — 3376 56k — 3378 1k — 3380 12k — 2358 100u

FEEDBACK A313

+Vcc, -Vcc, 24V, 16V, 0V, -24V, -17.5V

2353 2p7 — 2354 2p7

A342 F342 — A341 F341 — A345 F343 — A344 F344 — A340 F340 — A324 F324

PART F HEADPHONES PANEL

0322: 2703 3391 — 6803 3393 — 6803 3394 — 2703 3392

0323: SPEAKER LEFT 8 Ω FRONT; SPEAKER LEFT 8 Ω REAR; FROM PEN3 OF SPEAKER RIGHT

0323: SPEAKER RIGHT 8 Ω REAR; SPEAKER RIGHT 8 Ω FRONT; TO PEN4 OF SPEAKER LEFT — 18E 3395

7307 BC547 — 3335 1k — 3336 1k

0313: Phono supply out 100mA +12A — 1304

TO CASSETTE MOTOR — 0319: +V MOTOR A320, MOTOR A321

7305 BD433 0.7V — 3309 470R — 3308 390R

TO SELECTOR — 0321: SPEAKERS A325, REFERENCE A326, RETURN A327, -12V A328, +14V A329

-12.3V — 2325 220u — 7306 BC547 -11.6V — -12.4V — 6322 BZX79/C20 — 3325 10k — 3324 10k — 3323 1k — 6321 BZX79/C12

0320: A323, A322 — 0314 RC5 IN/OUT — 10E 3396

TO FRONT — 0315: POWER DOWN A304, +14V A300, EARTH A305, STAND BY A302, +V A301, MUTE A303 L=mute

-0.3V — 6383 1N4148 — 3397 10E — 7304 BD679 14.2V — 2306 100u — 2305 1n — 3305 820R — 15.6V — 3306 680R — 3307 100R — 2307 47u — 2304 100u — 6305 BZX79/C15

15V — 12.5V — 3.3V

P — 3389 3k3 — 2361 3u3 — 3382 470R — 3381 220R — 7333 BC548C -17.5V — 3383 100R — 7334 BC557C -24V — 3384 10k — 3385 33R — 6381 BZX79/C2V — 1.4V

FOR 115V/230V VERSIONS (-/01) UNIT 3104 217 23080 → 5001 UMI X22LLT

FOR 120V VERSIONS (-/17) UNIT 3104 217 23660 → 5001 3301 3302 UMI X22LLT

FOR 240V VERSIONS (-/05) UNIT 3104 217 23670 → 5001 UMI X22LLT

FOR 220V VERSIONS (-/00 -/02 -/08) UNIT 3104 217 22240 → 5001 0312 UMI X22LLT

6320 KBU4D — 2322 100n — 2323 4m7 — 2324 4m7 — 2321 100n — 2320 100n — 1302 T 3.15A — 1303 T 3.15A — 18.5v

6301 1N4001GP — 6303 1N5392 — 6300 1N4001GP — 6302 1N5392 — 2302 47n — 2303 1m — 2301 47n — 2300 47n — 2308 3m3 — 1300 T 2A — 1301 T 2A — 10V

24V +Vcc — -Vcc -24V

ALL RESISTORS ARE — UNLESS OTHERWISE STATED

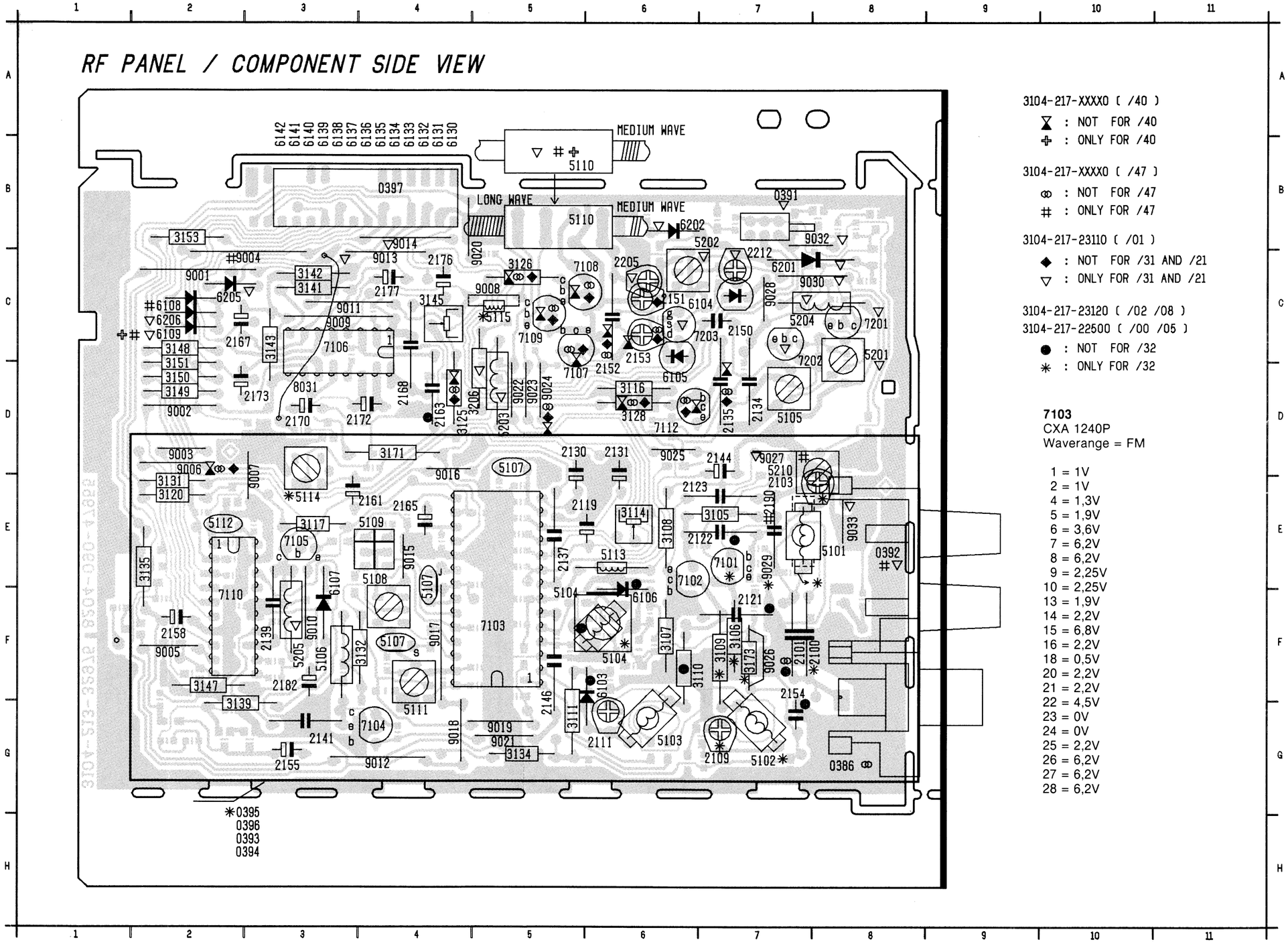
FS240
AF PART

PRS 06261
T06-945

| | | |

## TUNER COMPONENT LAY OUT

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0386 | G | 8 | 3143 | C | 3 | 7109 | C | 5 |
| 0391 | B | 7 | 3145 | C | 4 | 7110 | F | 2 |
| 0392 | E | 8 | 3147 | F | 2 | 7112 | D | 6 |
| 0393 | H | 2 | 3148 | C | 2 | 7201 | C | 8 |
| 0394 | H | 2 | 3149 | D | 2 | 7202 | D | 7 |
| 0395 | G | 2 | 3150 | D | 2 | 7203 | C | 7 |
| 0396 | H | 2 | 3151 | D | 2 | 8031 | D | 3 |
| 0397 | B | 4 | 3153 | B | 2 | 9001 | C | 2 |
| 2100 | F | 8 | 3171 | D | 4 | 9002 | D | 2 |
| 2101 | F | 7 | 3173 | F | 7 | 9003 | D | 2 |
| 2103 | E | 7 | 3206 | D | 5 | 9004 | C | 3 |
| 2109 | G | 7 | 5101 | E | 8 | 9005 | F | 2 |
| 2111 | G | 6 | 5102 | G | 7 | 9006 | D | 2 |
| 2119 | E | 6 | 5103 | G | 6 | 9007 | E | 3 |
| 2121 | F | 7 | 5104 | F | 6 | 9008 | C | 5 |
| 2122 | E | 7 | 5104 | F | 5 | 9009 | C | 3 |
| 2123 | E | 6 | 5105 | D | 7 | 9010 | F | 3 |
| 2130 | D | 5 | 5106 | F | 3 | 9011 | C | 3 |
| 2131 | D | 6 | 5107 | D | 5 | 9012 | G | 4 |
| 2134 | D | 7 | 5107 | F | 4 | 9013 | C | 4 |
| 2135 | D | 7 | 5107 | E | 4 | 9014 | B | 4 |
| 2137 | E | 5 | 5108 | E | 4 | 9015 | E | 4 |
| 2139 | F | 3 | 5109 | E | 4 | 9016 | E | 4 |
| 2141 | C | 3 | 5110 | B | 5 | 9017 | F | 4 |
| 2144 | D | 7 | 5110 | B | 5 | 9018 | G | 4 |
| 2146 | G | 5 | 5111 | G | 4 | 9019 | G | 5 |
| 2150 | C | 7 | 5112 | E | 2 | 9020 | C | 5 |
| 2151 | C | 6 | 5113 | E | 6 | 9021 | G | 5 |
| 2152 | D | 6 | 5114 | E | 3 | 9022 | D | 5 |
| 2153 | D | 6 | 5115 | C | 5 | 9023 | D | 5 |
| 2154 | F | 7 | 5201 | C | 8 | 9024 | D | 5 |
| 2155 | G | 3 | 5202 | B | 7 | 9025 | D | 6 |
| 2158 | F | 2 | 5203 | D | 5 | 9026 | F | 7 |
| 2161 | E | 4 | 5204 | C | 7 | 9027 | D | 7 |
| 2163 | D | 4 | 5205 | F | 3 | 9028 | C | 7 |
| 2165 | E | 4 | 5210 | D | 7 | 9029 | E | 7 |
| 2167 | C | 2 | 6103 | F | 6 | 9030 | C | 8 |
| 2168 | D | 4 | 6104 | C | 7 | 9032 | B | 8 |
| 2170 | D | 3 | 6105 | D | 6 | 9033 | E | 8 |
| 2172 | D | 4 | 6106 | F | 6 | | | |
| 2173 | D | 3 | 6107 | E | 3 | | | |
| 2176 | C | 4 | 6108 | C | 2 | | | |
| 2177 | C | 4 | 6109 | C | 2 | | | |
| 2182 | F | 3 | 6130 | B | 4 | | | |
| 2190 | E | 7 | 6131 | B | 4 | | | |
| 2205 | C | 6 | 6132 | B | 4 | | | |
| 2212 | C | 7 | 6133 | B | 4 | | | |
| 3105 | E | 7 | 6134 | B | 4 | | | |
| 3106 | F | 7 | 6135 | B | 4 | | | |
| 3107 | F | 6 | 6136 | B | 4 | | | |
| 3108 | E | 6 | 6137 | B | 3 | | | |
| 3109 | F | 7 | 6138 | B | 3 | | | |
| 3110 | F | 7 | 6139 | B | 3 | | | |
| 3111 | G | 5 | 6140 | B | 3 | | | |
| 3114 | E | 6 | 6141 | B | 3 | | | |
| 3116 | D | 6 | 6142 | B | 3 | | | |
| 3117 | E | 3 | 6201 | C | 7 | | | |
| 3120 | E | 2 | 6202 | B | 6 | | | |
| 3125 | D | 4 | 6205 | C | 2 | | | |
| 3126 | C | 5 | 6206 | C | 2 | | | |
| 3128 | D | 6 | 7101 | E | 7 | | | |
| 3131 | E | 2 | 7102 | E | 6 | | | |
| 3132 | F | 4 | 7103 | F | 5 | | | |
| 3134 | G | 5 | 7104 | G | 4 | | | |
| 3135 | E | 2 | 7105 | E | 3 | | | |
| 3139 | G | 2 | 7106 | C | 3 | | | |
| 3141 | C | 3 | 7107 | D | 5 | | | |
| 3142 | C | 3 | 7108 | C | 6 | | | |




3104-217-XXXX0 ( /40 )
⧗ : NOT FOR /40
✙ : ONLY FOR /40

3104-217-XXXX0 ( /47 )
⊗ : NOT FOR /47
# : ONLY FOR /47

3104-217-23110 ( /01 )
◆ : NOT FOR /31 AND /21
▽ : ONLY FOR /31 AND /21

3104-217-23120 ( /02 /08 )
3104-217-22500 ( /00 /05 )
● : NOT FOR /32
✳ : ONLY FOR /32

**7103**
CXA 1240P
Waverange = FM

1 = 1V
2 = 1V
4 = 1,3V
5 = 1,9V
6 = 3,6V
7 = 6,2V
8 = 6,2V
9 = 2,25V
10 = 2,25V
13 = 1,9V
14 = 2,2V
15 = 6,8V
16 = 2,2V
18 = 0,5V
20 = 2,2V
21 = 2,2V
22 = 4,5V
23 = 0V
24 = 0V
25 = 2,2V
26 = 6,2V
27 = 6,2V
28 = 6,2V

# TUNER CIRCUIT DIAGRAM

TUNER UNIT

FM-RF

FM-IF

7103 CXA1240P

LOOP FILTER

SYNTHESIZER

7110 LM7000

SHORT WAVE

LONG WAVE

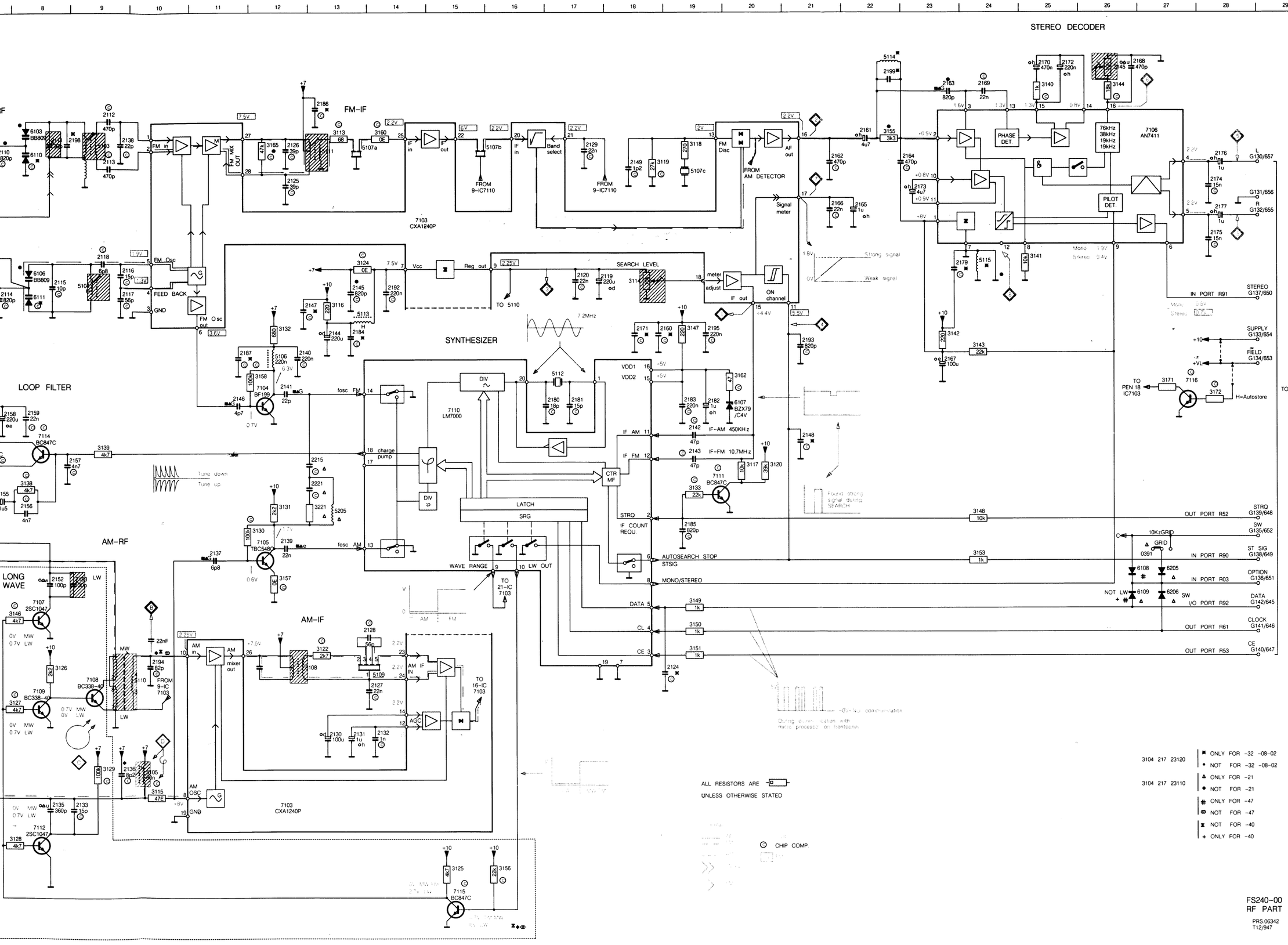
AM-RF

AM-IF

| Varicap voltage | | |
|---|---|---|
| FM | 87.5MHz | +2.7V |
| MW | 522kHz | +2.0V |
| LW | 150kHz | +1.0V |
| FM | 108MHz | +8V |
| MW | 1611kHz | +8.2V |
| LW | 253kHz | +7.8V |

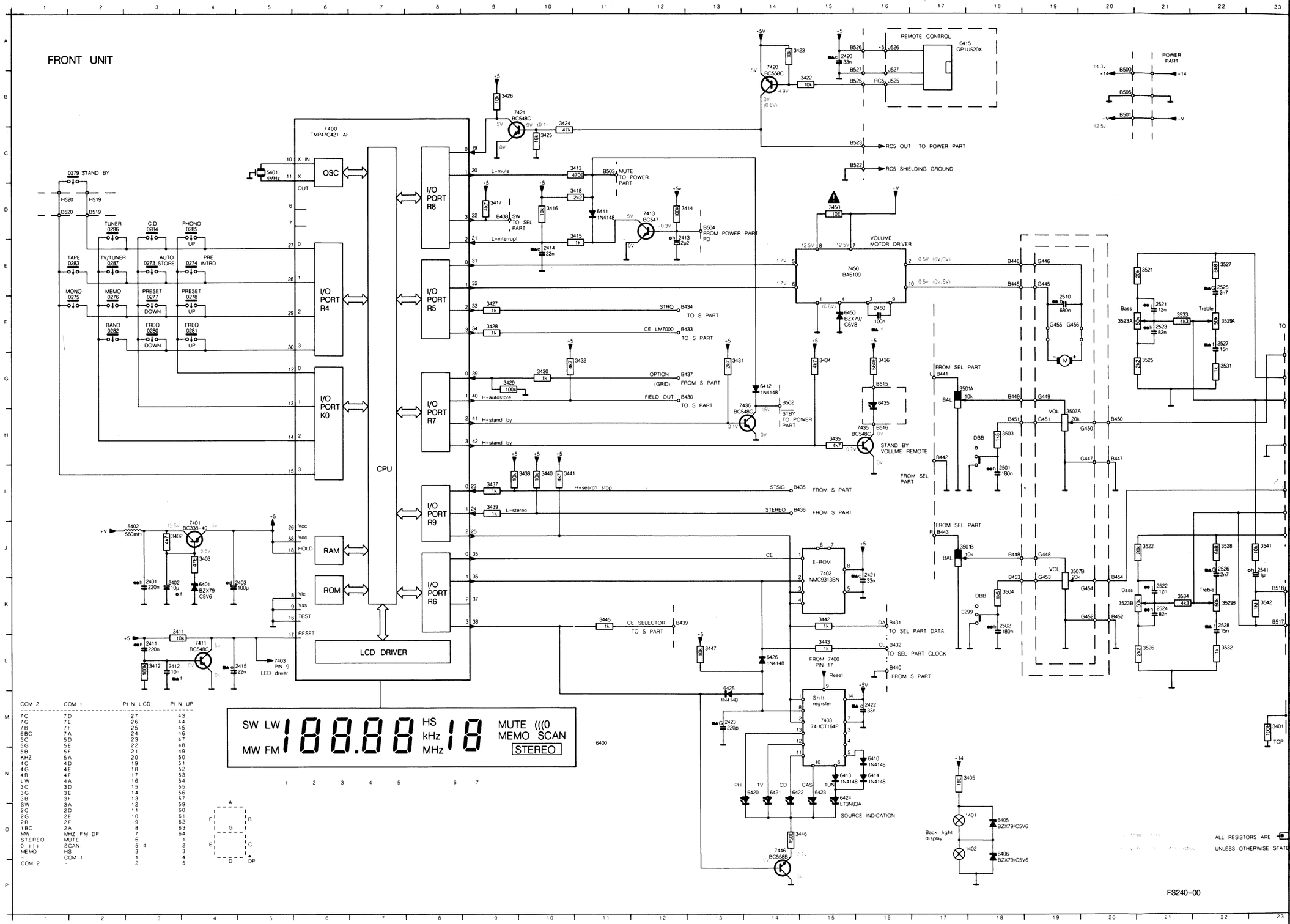
ALL RESISTORS ARE
UNLESS OTHERWISE STATED

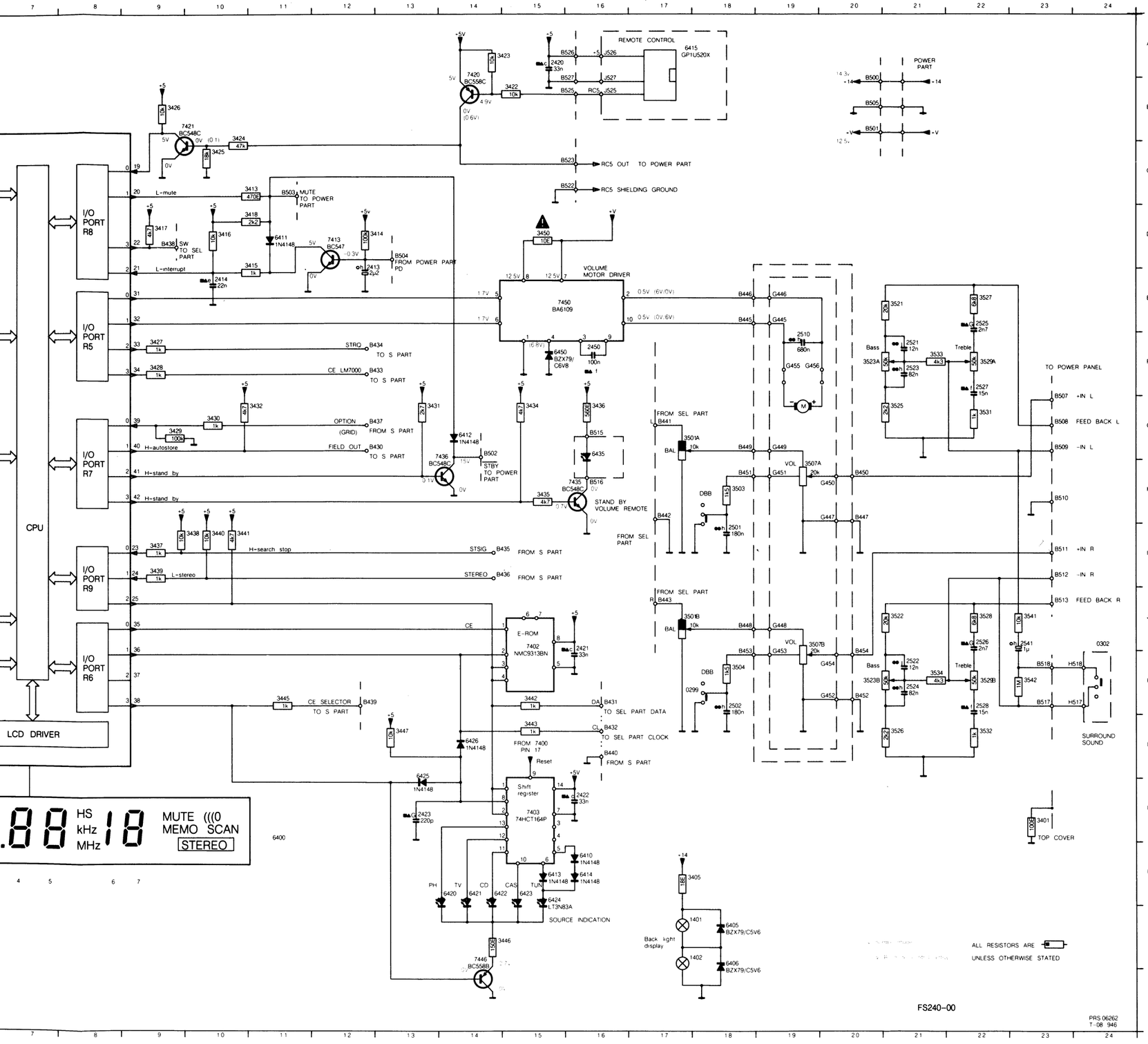
CHIP COMP.




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2100 | E 1 | 3137 | G 6 | | | |
| | 2101 | E 1 | 3138 | H 8 | | | |
| | 2102 | E 3 | 3139 | G 9 | | | |
| | 2103 | E 4 | 3140 | B25 | | | |
| | 2104 | A 3 | 3141 | D25 | | | |
| | 2105 | A 4 | 3142 | F23 | | | |
| A | 2106 | B 4 | 3143 | F24 | | | |
| | 2107 | D 4 | 3144 | B26 | | | |
| | 2108 | C 4 | 3145 | A26 | | | |
| | 2109 | B 6 | 3146 | J 8 | | | |
| | 2110 | C 7 | 3147 | F19 | | | |
| | 2111 | B 8 | 3148 | I 24 | | | |
| | 2112 | B 9 | 3149 | J19 | | | |
| | 2113 | C 9 | 3150 | J19 | | | |
| | 2114 | E 7 | 3151 | K19 | | | |
| | 2115 | E 8 | 3153 | I 24 | | | |
| B | 2116 | E10 | 3155 | B22 | | | |
| | 2117 | E10 | 3156 | N16 | | | |
| | 2118 | D 9 | 3157 | J12 | | | |
| | 2119 | E18 | 3158 | F12 | | | |
| | 2120 | E17 | 3160 | B14 | | | |
| | 2121 | D 3 | 3161 | C 7 | | | |
| | 2122 | D 3 | 3162 | F20 | | | |
| | 2123 | D 3 | 3163 | D 7 | | | |
| | 2124 | K19 | 3164 | D 2 | | | |
| C | 2125 | C12 | 3165 | B12 | | | |
| | 2126 | B12 | 3170 | G 3 | | | |
| | 2127 | K14 | 3171 | F27 | | | |
| | 2128 | J14 | 3172 | G28 | | | |
| | 2129 | B17 | 3173 | E 6 | | | |
| | 2130 | L13 | 3200 | L 3 | | | |
| | 2131 | L13 | 3201 | L 3 | | | |
| | 2132 | L14 | 3202 | O 3 | | | |
| | 2133 | M 9 | 3203 | N 3 | | | |
| | 2134 | M 7 | 3204 | K 5 | | | |
| D | 2135 | M 8 | 3205 | J 5 | | | |
| | 2136 | M10 | 3206 | J 5 | | | |
| | 2137 | I 11 | 3207 | K 4 | | | |
| | 2138 | B10 | 3208 | L 4 | | | |
| | 2139 | I 12 | 3209 | M 4 | | | |
| | 2140 | F12 | 3210 | N 2 | | | |
| | 2141 | F12 | 3212 | O 4 | | | |
| | 2142 | G19 | 3215 | O 3 | | | |
| | 2143 | H19 | 3221 | H13 | | | |
| | 2144 | F13 | 5101 | E 2 | | | |
| E | 2145 | E13 | 5102 | B 5 | | | |
| | 2146 | G11 | 5103 | B 9 | | | |
| | 2147 | E13 | 5104 | E 9 | | | |
| | 2148 | G21 | 5105 | M10 | | | |
| | 2149 | C18 | 5106 | F12 | | | |
| | 2150 | M 6 | 5108 | K13 | | | |
| | 2151 | I 7 | 5109 | K14 | | | |
| | 2152 | J 8 | 5110 | K10 | | | |
| | 2153 | J 9 | 5111 | C13 | | | |
| | 2154 | F 7 | 5112 | F17 | | | |
| F | 2155 | H 7 | 5113 | E13 | | | |
| | 2156 | H 8 | 5114 | A22 | | | |
| | 2157 | H 9 | 5115 | D24 | | | |
| | 2158 | G 8 | 5201 | N 4 | | | |
| | 2159 | G 8 | 5202 | K 3 | | | |
| | 2160 | F19 | 5203 | K 5 | | | |
| | 2161 | B22 | 5204 | O 3 | | | |
| | 2162 | C21 | 5205 | H13 | | | |
| G | 2163 | A23 | 5210 | F 2 | | | |
| | 2164 | C23 | 6101 | E 4 | | | |
| | 2165 | C22 | 6102 | B 6 | | | |
| | 2166 | C21 | 6103 | B 8 | | | |
| | 2167 | F23 | 6104 | M 6 | | | |
| | 2168 | A27 | 6105 | I 6 | | | |
| | 2169 | A24 | 6106 | E 8 | | | |
| | 2170 | A25 | 6107 | G20 | | | |
| | 2171 | F18 | 6108 | I 27 | | | |
| | 2172 | A25 | 6109 | J27 | | | |
| | 2173 | C23 | 6110 | C 8 | | | |
| H | 2174 | C28 | 6111 | E 8 | | | |
| | 2175 | D28 | 6201 | L 3 | | | |
| | 2176 | C28 | 6202 | L 4 | | | |
| | 2177 | D28 | 6205 | I 27 | | | |
| | 2178 | F 6 | 6206 | J27 | | | |
| | 2179 | D24 | 7101 | A 4 | | | |
| | 2180 | G17 | 7102 | C 5 | | | |
| | 2181 | G17 | 7103 | D14 | | | |
| | 2182 | G19 | 7103 | M12 | | | |
| | 2183 | G19 | 7104 | F12 | | | |
| I | 2184 | F13 | 7105 | I 12 | | | |
| | 2185 | I 19 | 7106 | B27 | | | |
| | 2186 | B13 | 7107 | J 8 | | | |
| | 2187 | F12 | 7108 | K 9 | | | |
| | 2188 | E 6 | 7109 | K 8 | | | |
| | 2189 | F 6 | 7110 | G15 | | | |
| | 2190 | F 2 | 7111 | H19 | | | |
| | 2191 | E 3 | 7112 | N 8 | | | |
| | 2192 | E14 | 7113 | G 7 | | | |
| | 2193 | F21 | 7114 | G 8 | | | |
| J | 2194 | K10 | 7115 | O15 | | | |
| | 2195 | F19 | 7116 | F27 | | | |
| | 2196 | E 5 | 7200 | N 2 | | | |
| | 2197 | E 5 | 7201 | N 4 | | | |
| | 2198 | B 9 | 7202 | M 4 | | | |
| | 2199 | A22 | 7203 | K 4 | | | |
| | 2201 | K 2 | c | C19 | | | |
| | 2202 | K 2 | | | | | |
| | 2203 | M 3 | | | | | |
| K | 2204 | L 3 | | | | | |
| | 2205 | K 3 | | | | | |
| | 2206 | M 4 | | | | | |
| | 2207 | N 4 | | | | | |
| | 2209 | J 5 | | | | | |
| | 2210 | K 5 | | | | | |
| | 2212 | M 3 | | | | | |
| | 2215 | H13 | | | | | |
| | 2217 | N 4 | | | | | |
| | 2219 | O 4 | | | | | |
| L | 2220 | O 4 | | | | | |
| | 2221 | H13 | | | | | |
| | 3101 | E 4 | | | | | |
| | 3102 | A 4 | | | | | |
| | 3103 | B 4 | | | | | |
| | 3104 | A 4 | | | | | |
| | 3105 | C 5 | | | | | |
| | 3106 | B 5 | | | | | |
| | 3107 | D 4 | | | | | |
| | 3108 | C 4 | | | | | |
| M | 3109 | C 5 | | | | | |
| | 3110 | D 6 | | | | | |
| | 3111 | C 7 | | | | | |
| | 3112 | E 7 | | | | | |
| | 3113 | B13 | | | | | |
| | 3114 | E18 | | | | | |
| | 3115 | M10 | | | | | |
| | 3116 | E13 | | | | | |
| | 3117 | H20 | | | | | |
| | 3118 | B19 | | | | | |
| N | 3119 | C19 | | | | | |
| | 3120 | H20 | | | | | |
| | 3121 | M 7 | | | | | |
| | 3122 | K13 | | | | | |
| | 3124 | D13 | | | | | |
| | 3125 | N15 | | | | | |
| | 3126 | K 8 | | | | | |
| | 3127 | L 8 | | | | | |
| | 3128 | N 8 | | | | | |
| | 3129 | M 9 | | | | | |
| O | 3130 | I 12 | | | | | |
| | 3131 | H12 | | | | | |
| | 3132 | F12 | | | | | |
| | 3133 | H19 | | | | | |
| | 3134 | F 6 | | | | | |
| | 3135 | F 7 | | | | | |
| | 3136 | G 7 | | | | | |

## FRONT UNIT CIRCUIT DIAGRAM



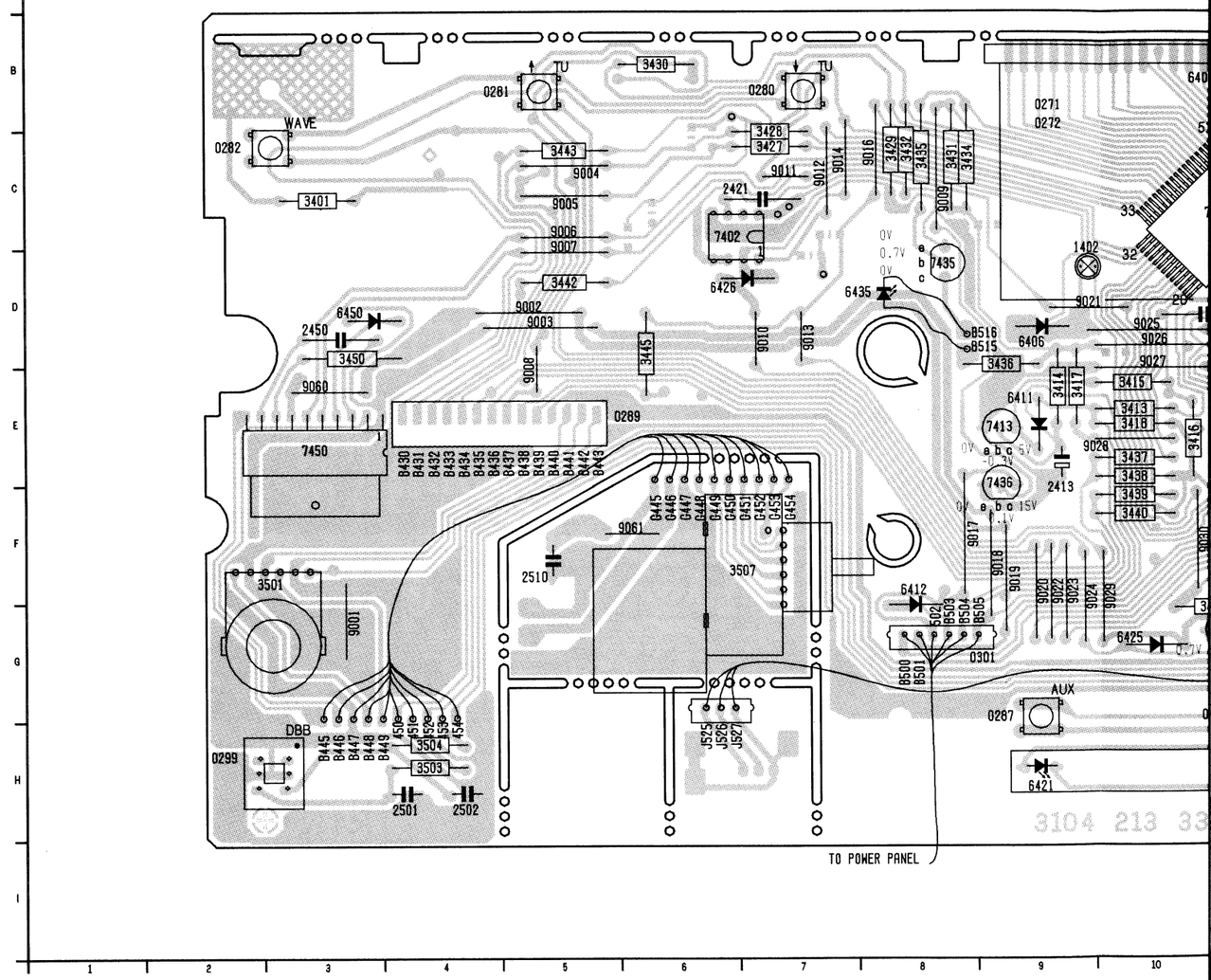



| | | | | | |
|---|---|---|---|---|---|
| | 0273 | E 3 | 7446 | O14 |
| | 0274 | E 4 | 7450 | E15 |
| | 0275 | F 2 | | |
| | 0276 | F 2 | | |
| A | 0277 | F 3 | | |
| | 0278 | F 4 | | |
| | 0279 | C 2 | | |
| | 0280 | F 3 | | |
| | 0281 | F 4 | | |
| | 0282 | F 2 | | |
| | 0283 | E 2 | | |
| | 0284 | D 3 | | |
| B | 0285 | D 4 | | |
| | 0286 | D 2 | | |
| | 0287 | E 2 | | |
| | 0299 | K18 | | |
| | 0302 | J24 | | |
| | 1401 | O17 | | |
| | 1402 | O17 | | |
| C | 2401 | K 3 | | |
| | 2402 | K 3 | | |
| | 2403 | K 4 | | |
| | 2411 | L 3 | | |
| | 2412 | L 3 | | |
| | 2413 | D12 | | |
| | 2414 | E10 | | |
| | 2415 | L 4 | | |
| | 2420 | A15 | | |
| D | 2421 | J16 | | |
| | 2422 | M16 | | |
| | 2423 | M13 | | |
| | 2450 | F16 | | |
| | 2501 | I 18 | | |
| | 2502 | K18 | | |
| | 2510 | F19 | | |
| | 2521 | F21 | | |
| E | 2522 | K21 | | |
| | 2523 | F21 | | |
| | 2524 | K21 | | |
| | 2525 | E22 | | |
| | 2526 | J22 | | |
| | 2527 | F22 | | |
| | 2528 | K22 | | |
| | 2541 | J23 | | |
| | 3401 | M23 | | |
| F | 3402 | J 3 | | |
| | 3403 | J 4 | | |
| | 3405 | N17 | | |
| | 3411 | K 3 | | |
| | 3412 | L 3 | | |
| | 3413 | C11 | | |
| | 3414 | D12 | | |
| | 3415 | D11 | | |
| G | 3416 | D10 | | |
| | 3417 | D 9 | | |
| | 3418 | D11 | | |
| | 3422 | B15 | | |
| | 3423 | A14 | | |
| | 3424 | B10 | | |
| | 3425 | C10 | | |
| | 3426 | B 9 | | |
| H | 3427 | F 9 | | |
| | 3428 | F 9 | | |
| | 3429 | G 9 | | |
| | 3430 | G10 | | |
| | 3431 | G13 | | |
| | 3432 | G10 | | |
| | 3434 | G15 | | |
| | 3435 | H15 | | |
| I | 3436 | G16 | | |
| | 3437 | I 9 | | |
| | 3438 | I 9 | | |
| | 3439 | I 9 | | |
| | 3440 | I 10 | | |
| | 3441 | I 10 | | |
| | 3442 | K15 | | |
| | 3443 | L15 | | |
| J | 3445 | K11 | | |
| | 3446 | O14 | | |
| | 3447 | L13 | | |
| | 3450 | D15 | | |
| | 3503 | H18 | | |
| | 3504 | K18 | | |
| | 3521 | E21 | | |
| | 3522 | J21 | | |
| K | 3523 | F21 | | |
| | 3523 | K21 | | |
| | 3525 | G21 | | |
| | 3526 | L21 | | |
| | 3527 | E22 | | |
| | 3528 | J22 | | |
| | 3529 | F22 | | |
| | 3529 | K22 | | |
| L | 3531 | G22 | | |
| | 3532 | L22 | | |
| | 3533 | F21 | | |
| | 3534 | K21 | | |
| | 3541 | J23 | | |
| | 3542 | K23 | | |
| | 5401 | C 5 | | |
| | 5402 | J 3 | | |
| M | 6400 | M11 | | |
| | 6401 | K 4 | | |
| | 6405 | O18 | | |
| | 6406 | O18 | | |
| | 6410 | N16 | | |
| | 6411 | D11 | | |
| | 6412 | G14 | | |
| | 6413 | N15 | | |
| N | 6414 | N16 | | |
| | 6415 | A17 | | |
| | 6420 | N14 | | |
| | 6421 | N14 | | |
| | 6422 | N14 | | |
| | 6423 | N15 | | |
| | 6424 | N15 | | |
| | 6425 | L13 | | |
| | 6426 | L14 | | |
| | 6435 | G16 | | |
| | 6450 | F15 | | |
| | 7400 | C 6 | | |
| | 7401 | J 4 | | |
| | 7402 | J15 | | |
| | 7403 | M15 | | |
| | 7411 | L 4 | | |
| | 7413 | D12 | | |
| | 7420 | A14 | | |
| | 7421 | B10 | | |
| | 7435 | H16 | | |
| | 7436 | G14 | | |

## FRONT PANEL COMPONENT LAY OUT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0271 | B 9 | 0281 | B 4 | 0299 | H 2 | 2413 | F 9 | 2510 | F 5 | 3401 | C 3 | 3416 | E10 | 3429 | C 8 | 3440 | F10 | 3504 | H 4 | 3531 | F13 | 454 | H 4 | 6412 | F 8 | 6435 | D 8 | 7435 | D 8 | 9007 | |
| 0272 | B 9 | 0282 | C 2 | 0301 | G 9 | 2414 | D11 | 2521 | F16 | 3402 | C13 | 3417 | E 9 | 3430 | B 6 | 3441 | G10 | 3507 | F 7 | 3532 | F13 | 502 | G 8 | 6413 | G12 | 6450 | D 3 | 7436 | E 9 | 9008 | |
| 0273 | B16 | 0283 | G16 | 0302 | D17 | 2415 | D11 | 2522 | F15 | 3403 | C13 | 3418 | E10 | 3431 | C 8 | 3442 | D 5 | 3521 | F16 | 3533 | F15 | 5401 | D11 | 6414 | G12 | 7400 | C11 | 7446 | G11 | 9009 | |
| 0274 | B14 | 0284 | G14 | 1401 | D11 | 2420 | D14 | 2523 | F16 | 3405 | E12 | 3422 | D14 | 3432 | C 8 | 3443 | C 5 | 3522 | F16 | 3534 | F15 | 5402 | E13 | 6420 | H13 | 7401 | C13 | 7450 | E 3 | 9010 | |
| 0275 | C16 | 0285 | G13 | 1402 | D 9 | 2421 | C 6 | 2524 | F16 | 3406 | E12 | 3423 | D14 | 3434 | C 8 | 3445 | D 6 | 3523 | F16 | 3541 | G14 | 6400 | B10 | 6421 | H 9 | 7402 | C 6 | 9001 | G 3 | 9011 | |
| 0276 | C15 | 0286 | H11 | 2401 | D12 | 2422 | F12 | 2525 | F14 | 3411 | E12 | 3424 | D14 | 3435 | C 8 | 3446 | G11 | 3525 | G15 | 3542 | G14 | 6401 | B13 | 6422 | H14 | 7403 | F12 | 9002 | D 5 | 9012 | |
| 0277 | C14 | 0287 | H 9 | 2402 | C12 | 2423 | F11 | 2526 | F14 | 3412 | E12 | 3425 | E13 | 3436 | D 9 | 3447 | G11 | 3526 | G15 | 450 | H 4 | 6405 | D12 | 6423 | H16 | 7411 | E11 | 9003 | D 5 | 9013 | |
| 0278 | C13 | 0289 | E 6 | 2403 | C12 | 2450 | D 3 | 2527 | F13 | 3413 | E10 | 3426 | E13 | 3437 | E10 | 3450 | D 3 | 3527 | F15 | 451 | H 4 | 6406 | D 9 | 6424 | H11 | 7413 | E 9 | 9004 | C 5 | 9014 | |
| 0279 | D16 | 0296 | E16 | 2411 | E11 | 2501 | H 4 | 2528 | F13 | 3414 | E 9 | 3427 | C 7 | 3438 | E10 | 3501 | F 3 | 3528 | F15 | 452 | H 4 | 6410 | F12 | 6425 | G10 | 7420 | D14 | 9005 | C 5 | 9016 | |
| 0280 | B 7 | 0298 | H12 | 2412 | E11 | 2502 | H 4 | 2541 | F14 | 3415 | E10 | 3428 | C 7 | 3439 | F10 | 3503 | H 4 | 3529 | F13 | 453 | H 4 | 6411 | E 9 | 6426 | D 6 | 7421 | E13 | 9006 | C 5 | 9017 | |

## *FRONT PANEL / COPPER SIDE VIEW*

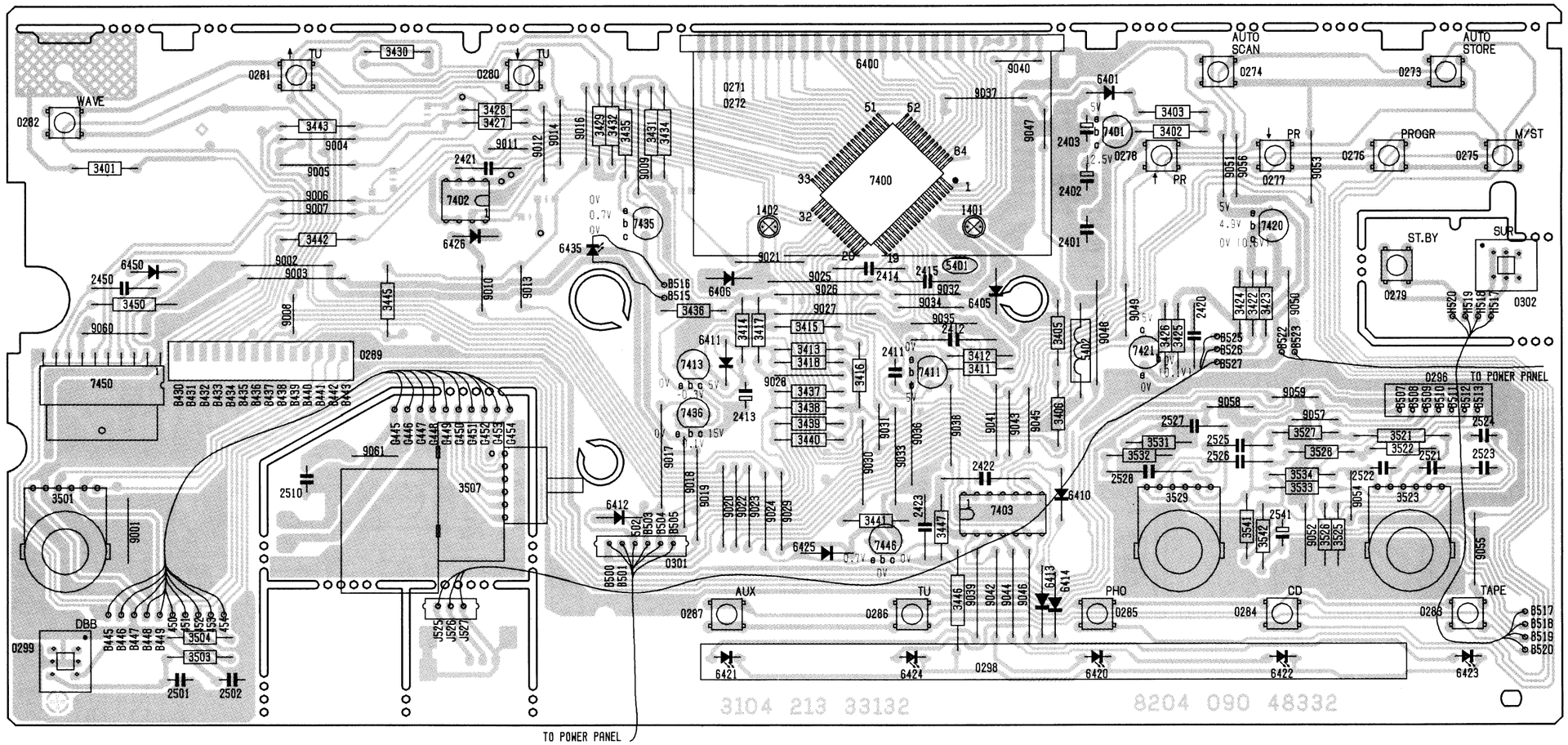


## FRONT PANEL COMPONENT LAY OUT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0271 | B 9 | 0281 | B 4 | 0299 | H 2 | 2413 | F 9 | 2510 | F 5 | 3401 | C 3 | 3416 | E10 | 3429 | C 8 | 3440 | F10 | 3504 | H 4 | 3531 | F13 | 454 | H 4 | 6412 | F 8 | 6435 | D 8 | 7435 | D 8 | 9007 | C 5 | 9018 | F 9 |
| 0272 | B 9 | 0282 | C 2 | 0301 | G 9 | 2414 | D11 | 2521 | F16 | 3402 | C13 | 3417 | E 9 | 3430 | B 6 | 3441 | G10 | 3507 | F 7 | 3532 | F13 | 502 | G 8 | 6413 | G12 | 6450 | D 3 | 7436 | E 9 | 9008 | E 5 | 9019 | F 9 |
| 0273 | B16 | 0283 | G16 | 0302 | D17 | 2415 | D11 | 2522 | F15 | 3403 | C13 | 3418 | E10 | 3431 | C 8 | 3442 | D 5 | 3521 | F16 | 3533 | F15 | 5401 | D11 | 6414 | G12 | 7400 | C11 | 7446 | G11 | 9009 | C 8 | 9020 | F 9 |
| 0274 | B14 | 0284 | G14 | 1401 | D11 | 2420 | D14 | 2523 | F16 | 3405 | E12 | 3422 | D14 | 3432 | C 8 | 3443 | C 5 | 3522 | F16 | 3534 | F15 | 5402 | E13 | 6420 | H13 | 7401 | C13 | 7450 | E 3 | 9010 | D 7 | 9021 | D 9 |
| 0275 | C16 | 0285 | G13 | 1402 | D 9 | 2421 | C 6 | 2524 | F16 | 3406 | E12 | 3423 | D14 | 3434 | C 8 | 3445 | D 6 | 3523 | F16 | 3541 | G14 | 6400 | B10 | 6421 | H 9 | 7402 | C 6 | 9001 | G 3 | 9011 | C 7 | 9022 | F 9 |
| 0276 | C15 | 0286 | H11 | 2401 | D12 | 2422 | F12 | 2525 | F14 | 3411 | E12 | 3424 | D14 | 3435 | C 8 | 3446 | G11 | 3525 | G15 | 3542 | G14 | 6401 | B13 | 6422 | H14 | 7403 | F12 | 9002 | D 5 | 9012 | C 7 | 9023 | F 9 |
| 0277 | C14 | 0287 | H 9 | 2402 | C12 | 2423 | F11 | 2526 | F14 | 3412 | E12 | 3425 | E13 | 3436 | D 9 | 3447 | G11 | 3526 | G15 | 450 | H 4 | 6405 | D12 | 6423 | H16 | 7411 | E11 | 9003 | D 5 | 9013 | D 7 | 9024 | F 9 |
| 0278 | C13 | 0289 | E 6 | 2403 | C12 | 2450 | D 3 | 2527 | F13 | 3413 | E10 | 3426 | E13 | 3437 | E10 | 3450 | D 3 | 3527 | F15 | 451 | H 4 | 6406 | D 9 | 6424 | H11 | 7413 | E 9 | 9004 | C 5 | 9014 | C 7 | 9025 | D10 |
| 0279 | D16 | 0296 | E16 | 2411 | E11 | 2501 | H 4 | 2528 | F13 | 3414 | E 9 | 3427 | C 7 | 3438 | E10 | 3501 | F 3 | 3528 | F15 | 452 | H 4 | 6410 | F12 | 6425 | G10 | 7420 | D14 | 9005 | C 5 | 9016 | C 8 | 9026 | D10 |
| 0280 | B 7 | 0298 | H12 | 2412 | E11 | 2502 | H 4 | 2541 | F14 | 3415 | E10 | 3428 | C 7 | 3439 | F10 | 3503 | H 4 | 3529 | F13 | 453 | H 4 | 6411 | E 9 | 6426 | D 6 | 7421 | E13 | 9006 | C 5 | 9017 | F 8 | 9027 | D10 |

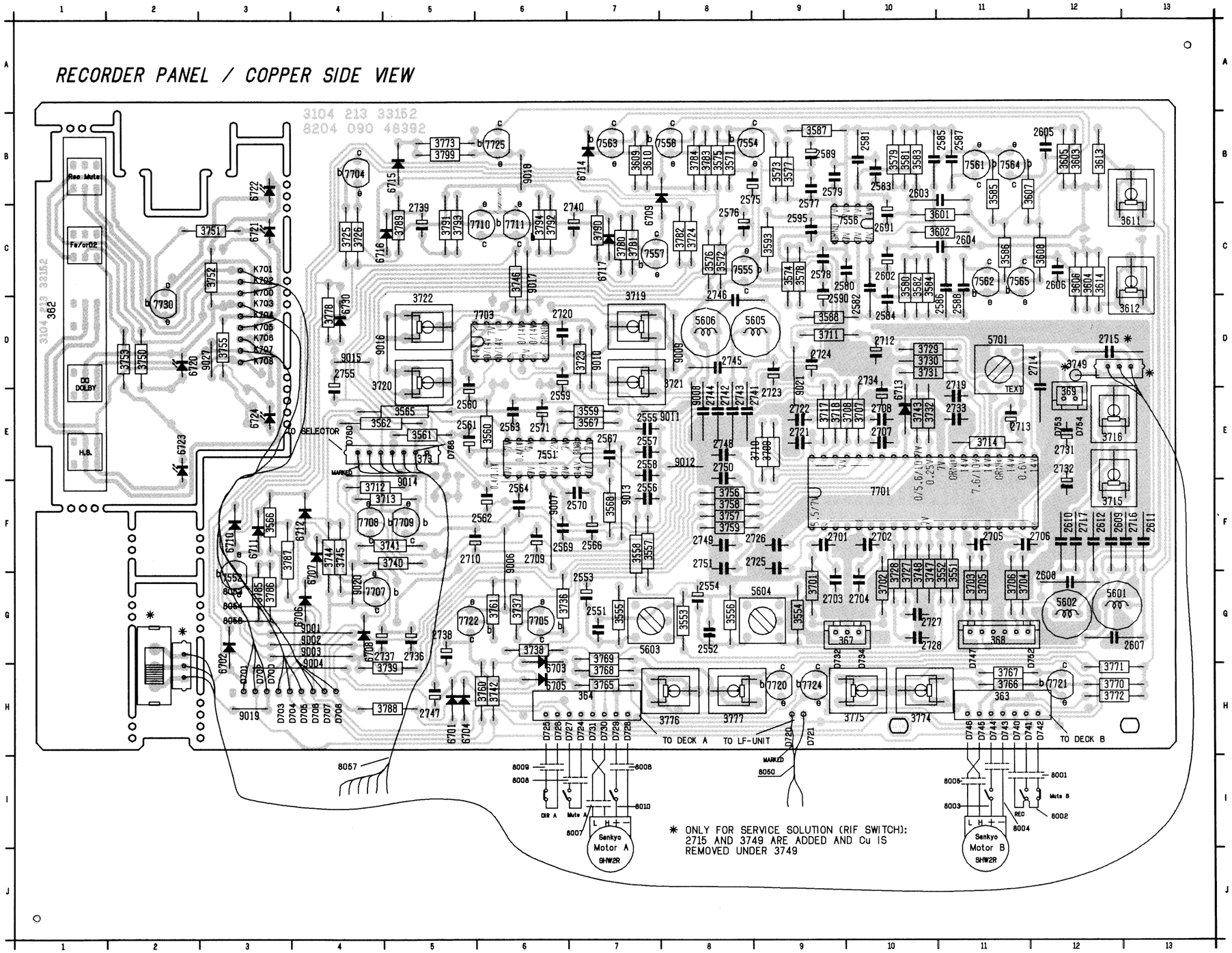
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9028 | E10 | 9038 | F11 | 9048 | E13 | 9058 | E14 | B436 | E 4 | B447 | H 3 | B509 | E16 | B520 | H17 | G449 | F 6 | J525 | H 6 |
| 9029 | F10 | 9039 | G11 | 9049 | D13 | 9059 | E15 | B437 | E 5 | B448 | H 3 | B510 | E16 | B522 | E14 | G450 | F 6 | J526 | H 6 |
| 9030 | F10 | 9040 | B12 | 9050 | D15 | 9060 | E 3 | B438 | E 5 | B449 | H 4 | B511 | E16 | B523 | E15 | G451 | F 7 | J527 | H 7 |
| 9031 | F11 | 9041 | F12 | 9051 | C14 | 9061 | F 6 | B439 | E 5 | B500 | G 8 | B512 | E16 | B525 | E14 | G452 | F 7 | | |
| 9032 | F10 | 9042 | G12 | 9052 | G15 | B430 | E 4 | B440 | E 5 | B501 | G 8 | B513 | E16 | B526 | E14 | G453 | F 7 | | |
| 9033 | F11 | 9043 | F11 | 9053 | C15 | B431 | E 4 | B441 | E 5 | B503 | G 8 | B515 | D 9 | B527 | E14 | G454 | F 7 | | |
| 9034 | D11 | 9044 | G12 | 9054 | F15 | B432 | E 4 | B442 | E 5 | B504 | G 8 | B516 | D 9 | G445 | F 6 | H517 | D17 | | |
| 9035 | E11 | 9045 | F12 | 9055 | G16 | B433 | E 4 | B443 | E 5 | B505 | G 9 | B517 | G17 | G446 | F 6 | H518 | D16 | | |
| 9036 | B12 | 9046 | G12 | 9056 | C14 | B434 | E 4 | B445 | H 3 | B507 | E16 | B518 | H17 | G447 | F 6 | H519 | D16 | | |
| 9037 | B12 | 9047 | C12 | 9057 | F15 | B435 | E 4 | B446 | H 3 | B508 | E16 | B519 | H17 | G448 | F 6 | H520 | D16 | | |

## FRONT PANEL / COPPER SIDE VIEW



## REC PANEL COMPONENT LAY OUT

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2551 | G 7 | 2743 | E 8 | 3721 | D 8 | 6711 | F 3 | D734 | H10 |
| 2552 | G 8 | 2744 | E 8 | 3722 | D 5 | 6712 | F 4 | D740 | H11 |
| 2553 | G 7 | 2745 | D 8 | 3723 | D 7 | 6713 | E10 | D741 | H12 |
| 2554 | G 8 | 2746 | C 8 | 3724 | C 8 | 6714 | B 7 | D742 | H12 |
| 2555 | E 7 | 2747 | H 5 | 3725 | C 4 | 6715 | B 5 | D743 | H11 |
| 2556 | F 7 | 2748 | E 8 | 3726 | C 4 | 6716 | C 4 | D744 | H11 |
| 2557 | E 7 | 2749 | F 8 | 3727 | G10 | 6717 | C 7 | D745 | H11 |
| 2558 | E 7 | 2750 | E 8 | 3728 | G10 | 6720 | D 2 | D746 | H11 |
| 2559 | E 6 | 2751 | F 8 | 3729 | D10 | 6721 | C 3 | D747 | H11 |
| 2560 | E 5 | 2755 | D 4 | 373 | E 5 | 6722 | B 3 | D752 | H12 |
| 2561 | E 5 | 3551 | G11 | 3730 | D10 | 6723 | E 2 | D753 | E12 |
| 2562 | F 6 | 3552 | G11 | 3731 | D10 | 6724 | E 3 | D754 | E12 |
| 2563 | E 6 | 3553 | G 8 | 3732 | E10 | 6730 | D 4 | D760 | E 4 |
| 2564 | F 6 | 3554 | G 9 | 3736 | G 6 | 7551 | E 6 | D766 | E 5 |
| 2566 | F 7 | 3555 | G 7 | 3737 | G 6 | 7552 | C 3 | K700 | C 3 |
| 2567 | E 7 | 3556 | G 8 | 3738 | G 6 | 7554 | B 8 | K701 | C 3 |
| 2569 | F 6 | 3557 | F 7 | 3739 | H 5 | 7555 | C 8 | K702 | C 3 |
| 2570 | F 7 | 3558 | F 7 | 3740 | F 5 | 7556 | C10 | K703 | D 3 |
| 2571 | E 6 | 3559 | E 7 | 3741 | F 5 | 7557 | C 7 | K704 | D 3 |
| 2575 | B 8 | 3560 | E 6 | 3742 | H 6 | 7558 | B 8 | K705 | D 3 |
| 2576 | C 8 | 3561 | E 5 | 3743 | E10 | 7561 | B11 | K706 | D 3 |
| 2577 | B 9 | 3562 | E 4 | 3744 | F 4 | 7562 | C11 | K707 | D 3 |
| 2578 | C 9 | 3565 | E 5 | 3745 | F 4 | 7563 | B 7 | K708 | D 3 |
| 2579 | B 9 | 3566 | F 3 | 3746 | C 6 | 7564 | B11 | | |
| 2580 | C10 | 3567 | E 7 | 3747 | G10 | 7565 | C11 | | |
| 2581 | B10 | 3568 | F 7 | 3748 | G10 | 7701 | F10 | | |
| 2582 | D10 | 3571 | B 8 | 3749 | D12 | 7703 | D 6 | | |
| 2583 | B10 | 3572 | C 8 | 3750 | D 2 | 7704 | B 4 | | |
| 2584 | D10 | 3573 | B 9 | 3751 | C 3 | 7705 | G 6 | | |
| 2585 | B11 | 3574 | C 9 | 3752 | C 3 | 7707 | G 4 | | |
| 2586 | D11 | 3575 | B 8 | 3753 | D 2 | 7708 | F 4 | | |
| 2587 | B11 | 3576 | C 8 | 3755 | D 3 | 7709 | F 5 | | |
| 2588 | D11 | 3577 | B 9 | 3756 | F 8 | 7710 | C 6 | | |
| 2589 | B 9 | 3578 | C 9 | 3757 | F 8 | 7711 | C 6 | | |
| 2590 | D 9 | 3579 | B10 | 3758 | F 8 | 7720 | H 9 | | |
| 2595 | C 9 | 3580 | C10 | 3759 | F 8 | 7721 | H12 | | |
| 2601 | C10 | 3581 | B10 | 3760 | H 6 | 7722 | G 5 | | |
| 2602 | C10 | 3582 | C10 | 3761 | G 6 | 7724 | H 9 | | |
| 2603 | B10 | 3583 | B10 | 3765 | H 7 | 7725 | B 6 | | |
| 2604 | C11 | 3584 | C10 | 3766 | H11 | 7730 | D 2 | | |
| 2605 | B12 | 3585 | B11 | 3767 | H11 | 8053 | G 3 | | |
| 2606 | C12 | 3586 | C11 | 3768 | H 7 | 8054 | G 3 | | |
| 2607 | G13 | 3587 | B 9 | 3769 | G 7 | 8056 | G 3 | | |
| 2608 | G12 | 3588 | D 9 | 3770 | H12 | 8057 | I 4 | | |
| 2609 | F12 | 3593 | C 9 | 3771 | H12 | 9001 | G 4 | | |
| 2610 | F12 | 3601 | C11 | 3772 | H12 | 9002 | G 4 | | |
| 2611 | F13 | 3602 | C11 | 3773 | B 5 | 9003 | G 4 | | |
| 2612 | F12 | 3603 | B12 | 3774 | H10 | 9004 | G 4 | | |
| 2701 | F 9 | 3604 | C12 | 3775 | H10 | 9006 | F 6 | | |
| 2702 | F10 | 3605 | B12 | 3776 | H 8 | 9007 | F 6 | | |
| 2703 | G 9 | 3606 | C12 | 3777 | H 8 | 9008 | E 8 | | |
| 2704 | G10 | 3607 | B11 | 3778 | D 4 | 9009 | D 8 | | |
| 2705 | F11 | 3608 | C12 | 3780 | C 7 | 9010 | D 7 | | |
| 2706 | F12 | 3609 | B 7 | 3781 | C 7 | 9011 | E 8 | | |
| 2707 | E10 | 3610 | B 7 | 3782 | C 8 | 9012 | E 8 | | |
| 2708 | E10 | 3611 | C13 | 3783 | B 8 | 9013 | F 7 | | |
| 2709 | F 6 | 3612 | D13 | 3784 | B 8 | 9014 | F 5 | | |
| 2710 | F 5 | 3613 | B12 | 3785 | G 3 | 9015 | D 4 | | |
| 2712 | D10 | 3614 | C12 | 3786 | G 3 | 9016 | D 4 | | |
| 2713 | E11 | 362 | D 1 | 3787 | F 3 | 9017 | C 6 | | |
| 2714 | D12 | 363 | H11 | 3788 | H 5 | 9018 | B 6 | | |
| 2715 | D12 | 364 | H 7 | 3789 | C 5 | 9019 | H 3 | | |
| 2716 | F13 | 367 | G10 | 3790 | C 7 | 9020 | G 4 | | |
| 2717 | F12 | 368 | G11 | 3791 | C 5 | 9021 | D 9 | | |
| 2719 | D11 | 369 | E12 | 3792 | C 6 | 9027 | D 3 | | |
| 2720 | D 6 | 3701 | G 9 | 3793 | C 5 | D700 | H 3 | | |
| 2721 | E 9 | 3702 | G10 | 3794 | C 6 | D701 | H 3 | | |
| 2722 | E 9 | 3703 | G11 | 3799 | B 5 | D702 | H 3 | | |
| 2723 | E 9 | 3704 | G11 | 5601 | G12 | D703 | H 3 | | |
| 2724 | D 9 | 3705 | G11 | 5602 | G12 | D704 | H 4 | | |
| 2725 | F 9 | 3706 | G11 | 5603 | G 7 | D705 | H 4 | | |
| 2726 | F 9 | 3707 | E10 | 5604 | G 9 | D706 | H 4 | | |
| 2727 | G10 | 3708 | E10 | 5605 | D 9 | D707 | H 4 | | |
| 2728 | G10 | 3709 | E 9 | 5606 | D 8 | D708 | H 4 | | |
| 2731 | E12 | 3710 | E 9 | 5701 | D11 | D720 | H 9 | | |
| 2732 | E12 | 3711 | D 9 | 6701 | H 5 | D721 | H 9 | | |
| 2733 | E11 | 3712 | F 4 | 6702 | G 3 | D724 | H 7 | | |
| 2734 | D10 | 3713 | F 5 | 6703 | H 6 | D725 | H 6 | | |
| 2736 | G 5 | 3714 | E11 | 6704 | H 5 | D726 | H 6 | | |
| 2737 | G 5 | 3715 | F12 | 6705 | H 6 | D727 | H 7 | | |
| 2738 | G 5 | 3716 | E12 | 6706 | G 4 | D728 | H 7 | | |
| 2739 | C 5 | 3717 | E 9 | 6707 | G 4 | D729 | H 7 | | |
| 2740 | C 7 | 3718 | E 9 | 6708 | G 4 | D730 | H 7 | | |
| 2741 | E 9 | 3719 | C 7 | 6709 | C 7 | D731 | H 7 | | |
| 2742 | E 8 | 3720 | D 4 | 6710 | F 3 | D732 | H 9 | | |



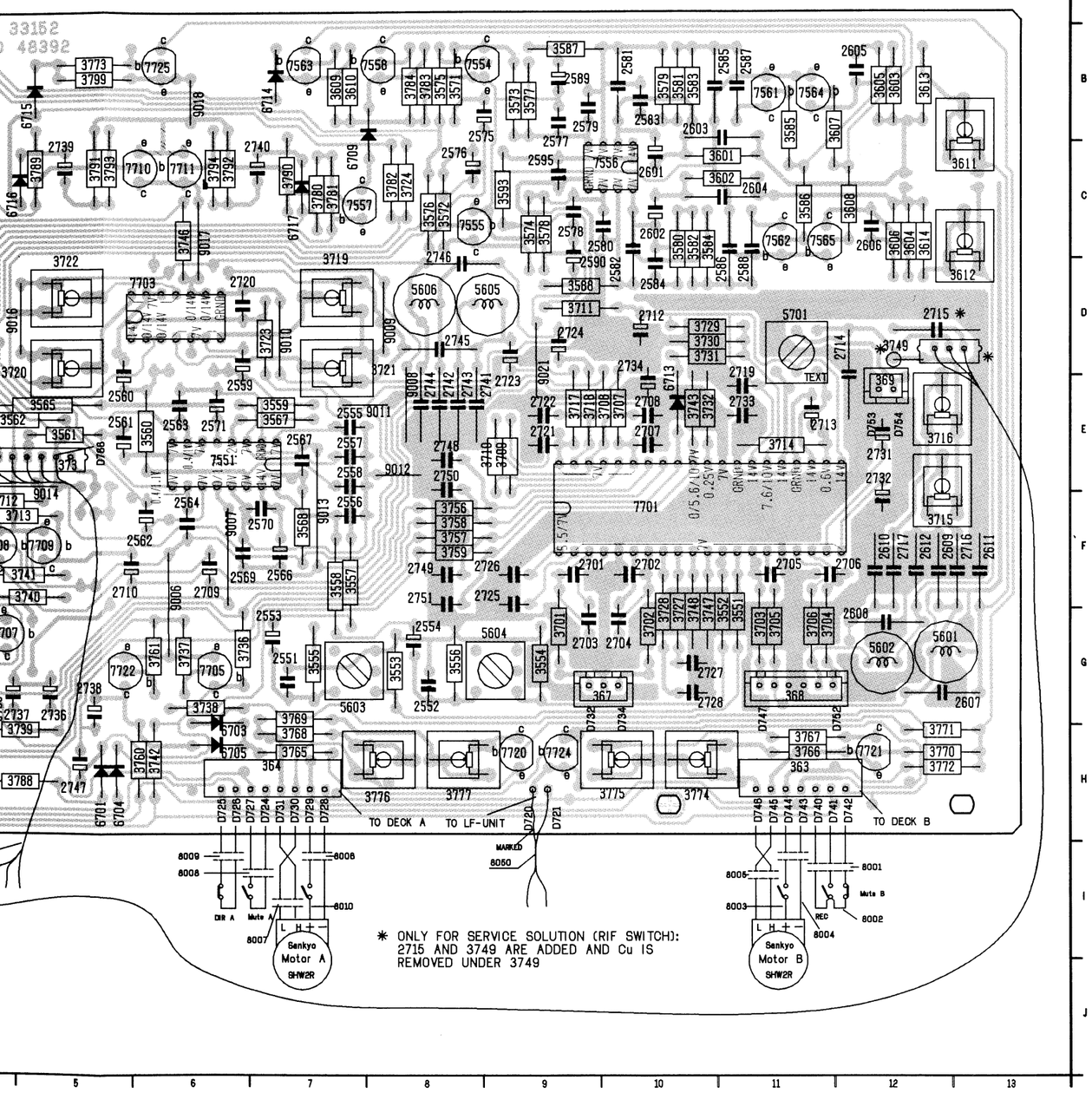

| Adjustment | Ca |
|---|---|
| Motor speed<br>High speed<br><br>Normal speed | SE<br>31 |
| Wow and Flutter | SE<br>31 |
| Azimuth | SE<br>10 |

| Adjustment | Sc |
|---|---|
| Play back-<br>sensitivity | De<br>lev<br>ca |
| Recording-<br>sensitivity | De<br>Ce<br><br>in<br>at<br>50 |
| Bias | De<br>Ce |
| Erase<br>oscillator | |

* Make a record and

\+ If sensitivity, distorti

VIEW



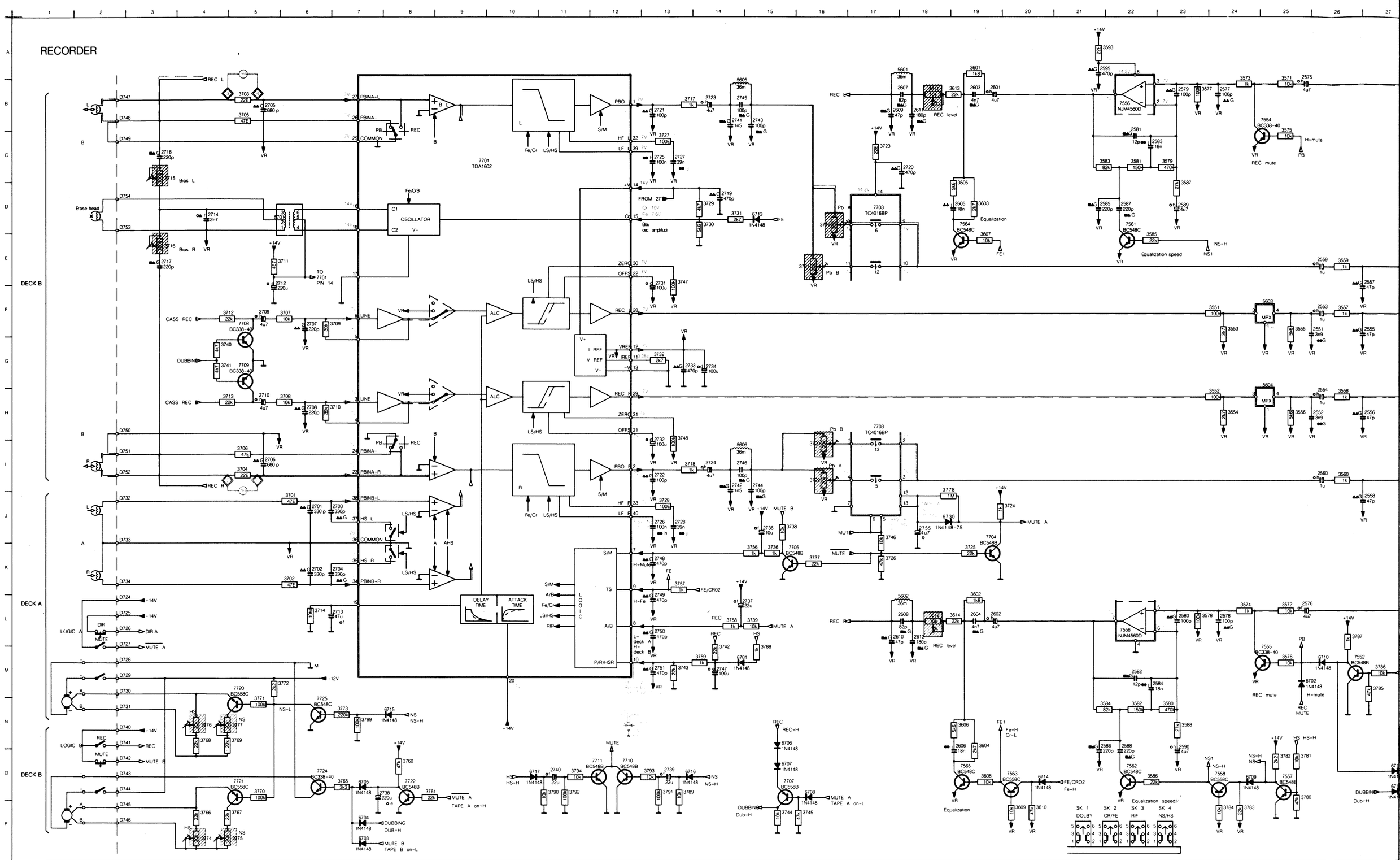

| Adjustment | Cassette | Recorder | Measure on | Read on | Adjust with | Adjust to |
|---|---|---|---|---|---|---|
| Motor speed | SBC 420 3150 Hz | | Line out 0351/0352 | | | |
| High speed | | play A | | frequency counter | 3776 | 6300 Hz ±3% |
| | | play B | | | 3774 | 6300 Hz ±3% |
| Normal speed | | play A | | Wow and flutter-meter | 3777 | 0 ±1% |
| | | play B | | | 3775 | 0 ±1% |
| Wow and Flutter | SBC 420 3150 Hz | play A play B | Line out 0351/0352 | Wow and flutter-meter | | check if ⩽0,3% |
| Azimuth | SBC 420 10kHz | play A | line out 0351/0352 | mV-meter | Left hand screw (normal direction) Right hand screw (reverse direction) Left hand screw | max. output left= right |
| | | play B | | | | |

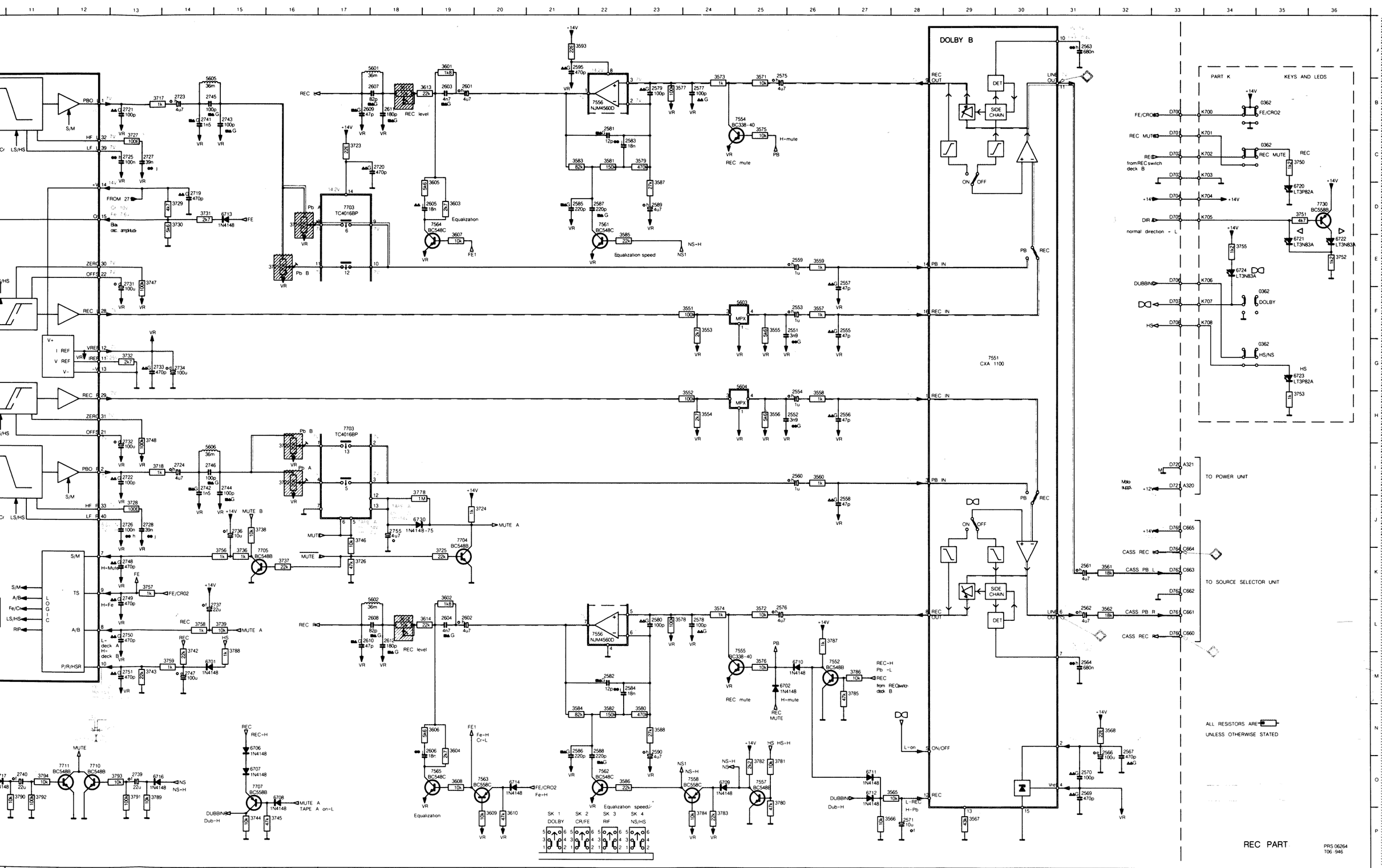
| Adjustment | Source | Recorder | Measure on | Read on | Adjust with | Adjust to |
|---|---|---|---|---|---|---|
| Play back-sensitivity | Dolby reference level-cassette | Play A | left ① | mV-meter | 3719 | 775mV ±0,5 dB |
| | | | right ② | | 3722 | 775mV ±0,5 dB |
| | | Play B | left ① | mV-meter | 3721 | 775mV ±0,5 dB |
| | | | right ② | | 3720 | 775mV ±0,5 dB |
| Recording-sensitivity | Dolby off Cr-position input signal at Ⓐ Ⓑ 500 mV/315 Hz | Rec. B | 3703 left ③↔④ 3704 right ⑤↔⑥ | mV-meter | 3611 left 3612 right | 1,8 mV* 1,8 mV* |
| Bias | Dolby off Cr-position | Rec. B | 3703 left ③↔④ 3704 right ⑤↔⑥ | mV-meter | 3715 left 3716 right | 12 mV + 12 mV + |
| Erase oscillator | | Rec. B | Erase head D753/D754 | mV-meter frequency counter | | check: Cr 16 V ±2,5 V Fe 10 V ±2 V f=76 ±6 kHz |

* Make a record and check if recorded signal gives 775 mV ±0,5 dB on ① and ② in play back. Distortion ⩽0,3 %.

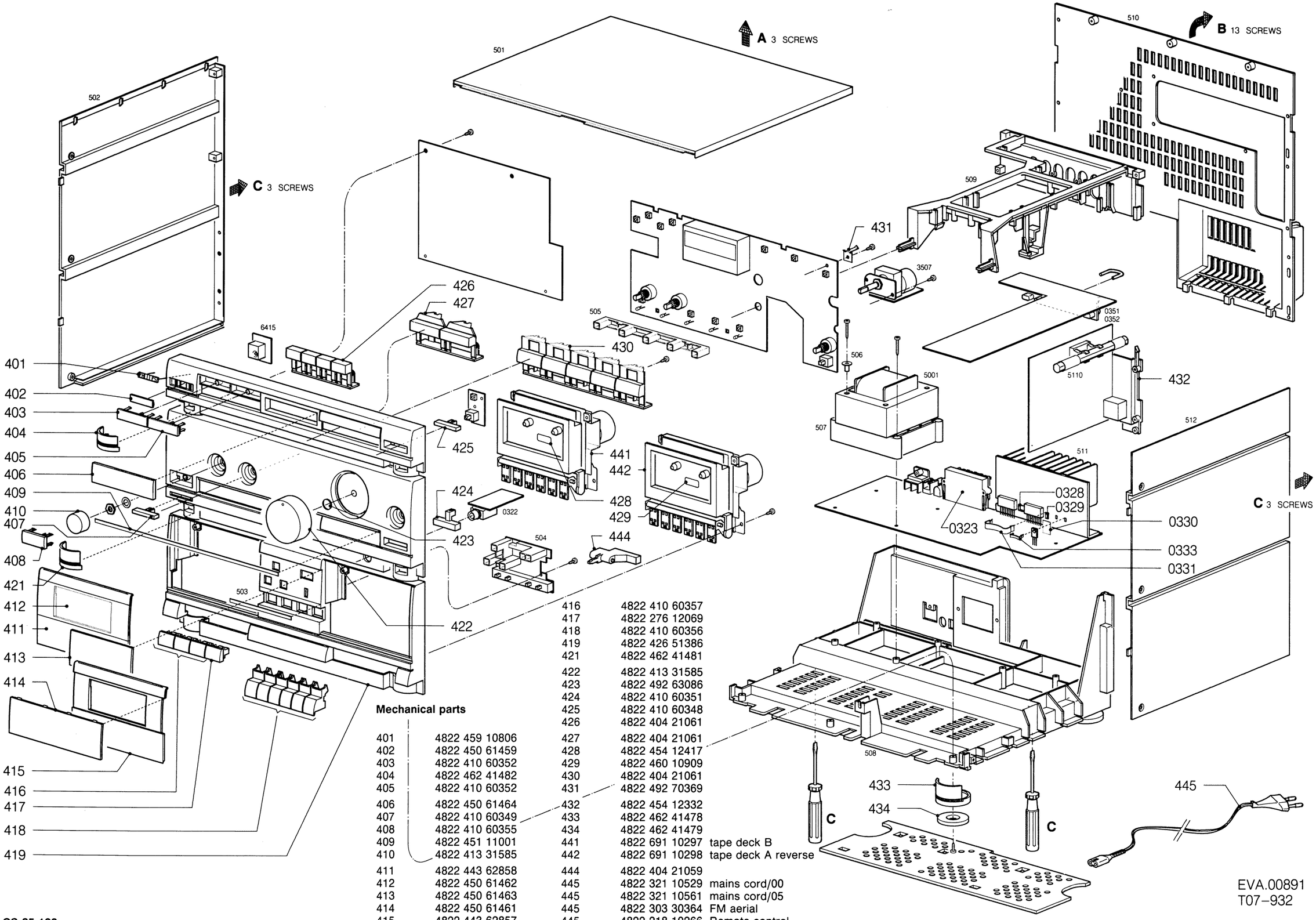
\+ If sensitivity, distortion or frequency response are wrong, then readjust recording sensitivity and/or bias and check again.

## REC UNIT CIRCUIT DIAGRAM






| | | | | |
|---|---|---|---|---|
| 2551 | F26 | 3712 | F 4 |
| 2552 | H26 | 3713 | H 4 |
| 2553 | F26 | 3714 | L 6 |
| 2554 | H26 | 3715 | C 3 |
| 2555 | F27 | 3716 | E 3 |
| 2556 | H27 | 3717 | B13 |
| 2557 | E27 | 3718 | I 13 |
| 2558 | J27 | 3719 | D16 |
| 2559 | E26 | 3720 | I 16 |
| 2560 | I 26 | 3721 | E16 |
| 2561 | K31 | 3722 | I 16 |
| 2562 | L31 | 3723 | C17 |
| 2563 | A31 | 3724 | J20 |
| 2564 | M31 | 3725 | K19 |
| 2566 | N32 | 3726 | K17 |
| 2567 | N32 | 3727 | C13 |
| 2569 | C31 | 3728 | J13 |
| 2570 | C31 | 3729 | D14 |
| 2571 | P28 | 3730 | D14 |
| 2575 | A25 | 3731 | D14 |
| 2576 | L25 | 3732 | G13 |
| 2577 | B24 | 3736 | K15 |
| 2578 | L24 | 3737 | K16 |
| 2579 | B23 | 3738 | J15 |
| 2580 | L23 | 3739 | L15 |
| 2581 | B22 | 3740 | G 4 |
| 2582 | M22 | 3741 | G 4 |
| 2583 | C23 | 3742 | M14 |
| 2584 | M23 | 3743 | M13 |
| 2585 | D22 | 3744 | P15 |
| 2586 | N22 | 3745 | P16 |
| 2587 | D22 | 3746 | J17 |
| 2588 | N22 | 3747 | E13 |
| 2589 | D23 | 3748 | H13 |
| 2590 | N23 | 3750 | C35 |
| 2595 | A22 | 3751 | D35 |
| 2601 | B19 | 3752 | E36 |
| 2602 | L19 | 3753 | H35 |
| 2603 | B19 | 3755 | E34 |
| 2604 | L19 | 3756 | K15 |
| 2605 | D19 | 3757 | K13 |
| 2606 | N19 | 3758 | L14 |
| 2607 | B18 | 3759 | M14 |
| 2608 | L18 | 3760 | O 8 |
| 2609 | B17 | 3761 | O 8 |
| 2610 | L17 | 3765 | O 7 |
| 2611 | B18 | 3766 | P 4 |
| 2612 | L18 | 3767 | P 5 |
| 2701 | J 6 | 3768 | N 4 |
| 2702 | K 6 | 3769 | N 5 |
| 2703 | J 7 | 3770 | O 5 |
| 2704 | K 7 | 3771 | N 5 |
| 2705 | B 5 | 3772 | M 6 |
| 2706 | I 5 | 3773 | N 7 |
| 2707 | F 6 | 3774 | P 4 |
| 2708 | H 6 | 3775 | P 5 |
| 2709 | F 5 | 3776 | N 4 |
| 2710 | H 5 | 3777 | N 5 |
| 2712 | E 6 | 3778 | I 18 |
| 2713 | L 7 | 3780 | Q25 |
| 2714 | D 4 | 3781 | Q25 |
| 2716 | C 3 | 3782 | Q25 |
| 2717 | E 3 | 3783 | P24 |
| 2719 | D14 | 3784 | P24 |
| 2720 | C18 | 3785 | M27 |
| 2721 | B13 | 3786 | M27 |
| 2722 | I 13 | 3787 | L26 |
| 2723 | B14 | 3788 | M15 |
| 2724 | I 14 | 3789 | O13 |
| 2725 | C13 | 3790 | O11 |
| 2726 | J13 | 3791 | O13 |
| 2727 | C13 | 3792 | O11 |
| 2728 | J13 | 3793 | O13 |
| 2731 | E13 | 3794 | O11 |
| 2732 | H13 | 3799 | N 7 |
| 2733 | G13 | 5601 | A18 |
| 2734 | G14 | 5602 | L18 |
| 2736 | J15 | 5603 | F25 |
| 2737 | L15 | 5604 | Q25 |
| 2738 | O 8 | 5605 | B14 |
| 2739 | O13 | 5606 | I 14 |
| 2740 | O11 | 5701 | D 5 |
| 2741 | B14 | 6701 | M14 |
| 2742 | I 14 | 6702 | M25 |
| 2743 | B15 | 6703 | P 7 |
| 2744 | I 15 | 6704 | P 7 |
| 2745 | B14 | 6705 | O 7 |
| 2746 | I 14 | 6706 | N15 |
| 2747 | M14 | 6707 | O15 |
| 2748 | K13 | 6708 | O16 |
| 2749 | K13 | 6709 | Q24 |
| 2750 | L13 | 6710 | M26 |
| 2751 | M13 | 6711 | Q27 |
| 2755 | J18 | 6712 | Q27 |
| 3551 | F24 | 6713 | D15 |
| 3552 | H24 | 6714 | Q20 |
| 3553 | F24 | 6715 | N 8 |
| 3554 | H24 | 6716 | O13 |
| 3555 | F25 | 6717 | O10 |
| 3556 | H25 | 6720 | D35 |
| 3557 | F26 | 6721 | E35 |
| 3558 | H26 | 6722 | E36 |
| 3559 | E26 | 6723 | Q35 |
| 3560 | I 26 | 6724 | E34 |
| 3561 | K32 | 6730 | J18 |
| 3562 | L32 | 7551 | Q29 |
| 3565 | Q28 | 7552 | M26 |
| 3566 | P28 | 7554 | B25 |
| 3567 | P29 | 7555 | L25 |
| 3568 | N32 | 7556 | B22 |
| 3571 | A25 | 7556 | L22 |
| 3572 | L25 | 7557 | Q25 |
| 3573 | A24 | 7558 | Q24 |
| 3574 | L24 | 7561 | Q22 |
| 3575 | B25 | 7562 | Q22 |
| 3576 | M25 | 7563 | Q20 |
| 3577 | B23 | 7564 | D19 |
| 3578 | L23 | 7565 | O19 |
| 3579 | Q23 | 7701 | C 9 |
| 3580 | N23 | 7703 | H17 |
| 3581 | Q22 | 7703 | D17 |
| 3582 | N22 | 7704 | J19 |
| 3583 | Q21 | 7705 | K15 |
| 3584 | N21 | 7707 | O15 |
| 3585 | E22 | 7708 | F 5 |
| 3586 | Q22 | 7709 | G 5 |
| 3587 | D23 | 7710 | O12 |
| 3588 | N23 | 7711 | O12 |
| 3593 | A22 | 7720 | M 5 |
| 3601 | A19 | 7721 | O 5 |
| 3602 | K19 | 7722 | O 8 |
| 3603 | D19 | 7724 | O 6 |
| 3604 | N19 | 7725 | N 6 |
| 3605 | D19 | 7730 | D36 |
| 3606 | N19 | | |
| 3607 | E19 | | |
| 3608 | O19 | | |
| 3609 | P20 | | |
| 3610 | P20 | | |
| 3611 | B18 | | |
| 3612 | L18 | | |
| 3613 | B19 | | |
| 3614 | L19 | | |
| 3701 | J 6 | | |
| 3702 | K 6 | | |
| 3703 | B 5 | | |
| 3704 | I 5 | | |
| 3705 | B 5 | | |
| 3706 | I 5 | | |
| 3707 | F 6 | | |
| 3708 | H 6 | | |
| 3709 | F 7 | | |
| 3710 | H 7 | | |
| 3711 | E 6 | | |




## Mechanical parts

| | | | |
|---|---|---|---|
| 401 | 4822 459 10806 | 416 | 4822 410 60357 |
| 402 | 4822 450 61459 | 417 | 4822 276 12069 |
| 403 | 4822 410 60352 | 418 | 4822 410 60356 |
| 404 | 4822 462 41482 | 419 | 4822 426 51386 |
| 405 | 4822 410 60352 | 421 | 4822 462 41481 |
| 406 | 4822 450 61464 | 422 | 4822 413 31585 |
| 407 | 4822 410 60349 | 423 | 4822 492 63086 |
| 408 | 4822 410 60355 | 424 | 4822 410 60351 |
| 409 | 4822 451 11001 | 425 | 4822 410 60348 |
| 410 | 4822 413 31585 | 426 | 4822 404 21061 |
| 411 | 4822 443 62858 | 427 | 4822 404 21061 |
| 412 | 4822 450 61462 | 428 | 4822 454 12417 |
| 413 | 4822 450 61463 | 429 | 4822 460 10909 |
| 414 | 4822 450 61461 | 430 | 4822 404 21061 |
| 415 | 4822 443 62857 | 431 | 4822 492 70369 |
| | | 432 | 4822 454 12332 |
| | | 433 | 4822 462 41478 |
| | | 434 | 4822 462 41479 |
| | | 441 | 4822 691 10297 tape deck B |
| | | 442 | 4822 691 10298 tape deck A reverse |
| | | 444 | 4822 404 21059 |
| | | 445 | 4822 321 10529 mains cord/00 |
| | | 445 | 4822 321 10561 mains cord/05 |
| | | 445 | 4822 303 30364 FM aerial |
| | | 445 | 4822 218 10266 Remote control |

EVA.00891
T07–932

## ELECTRICAL PARTS

### Miscellaneous

| | |
|---|---|
| 0273 | 4822 276 |
| 0274 | 4822 276 |
| 0275 | 4822 276 |
| 0276 | 4822 276 |
| 0277 | 4822 276 |
| 0278 | 4822 276 |
| 0279 | 4822 276 |
| 0280 | 4822 276 |
| 0281 | 4822 276 |
| 0282 | 4822 276 |
| 0283 | 4822 276 |
| 0284 | 4822 276 |
| 0285 | 4822 276 |
| 0286 | 4822 276 |
| 0287 | 4822 276 |
| 0299 | 4822 276 |
| 0302 | 4822 276 |
| 0312 | 4822 265 |
| 0313 | 4822 264 |
| 0314 | 4822 267 |
| 0322 | 4822 264 |
| 0323 | 4822 267 |
| 0328 | 4822 325 |
| 0329 | 4822 325 |
| 0330 | 4822 255 |
| 0331 | 5322 255 |
| 0332 | 5322 255 |
| 0333 | 4822 255 |
| 0351 | 4822 267 |
| 0352 | 4822 267 |
| 0362 | 4822 276 |
| 1300 | 4822 253 |
| 1301 | 4822 253 |
| 1302 | 4822 253 |
| 1303 | 4822 253 |
| 1401 | 4822 134 |
| 1402 | 4822 134 |

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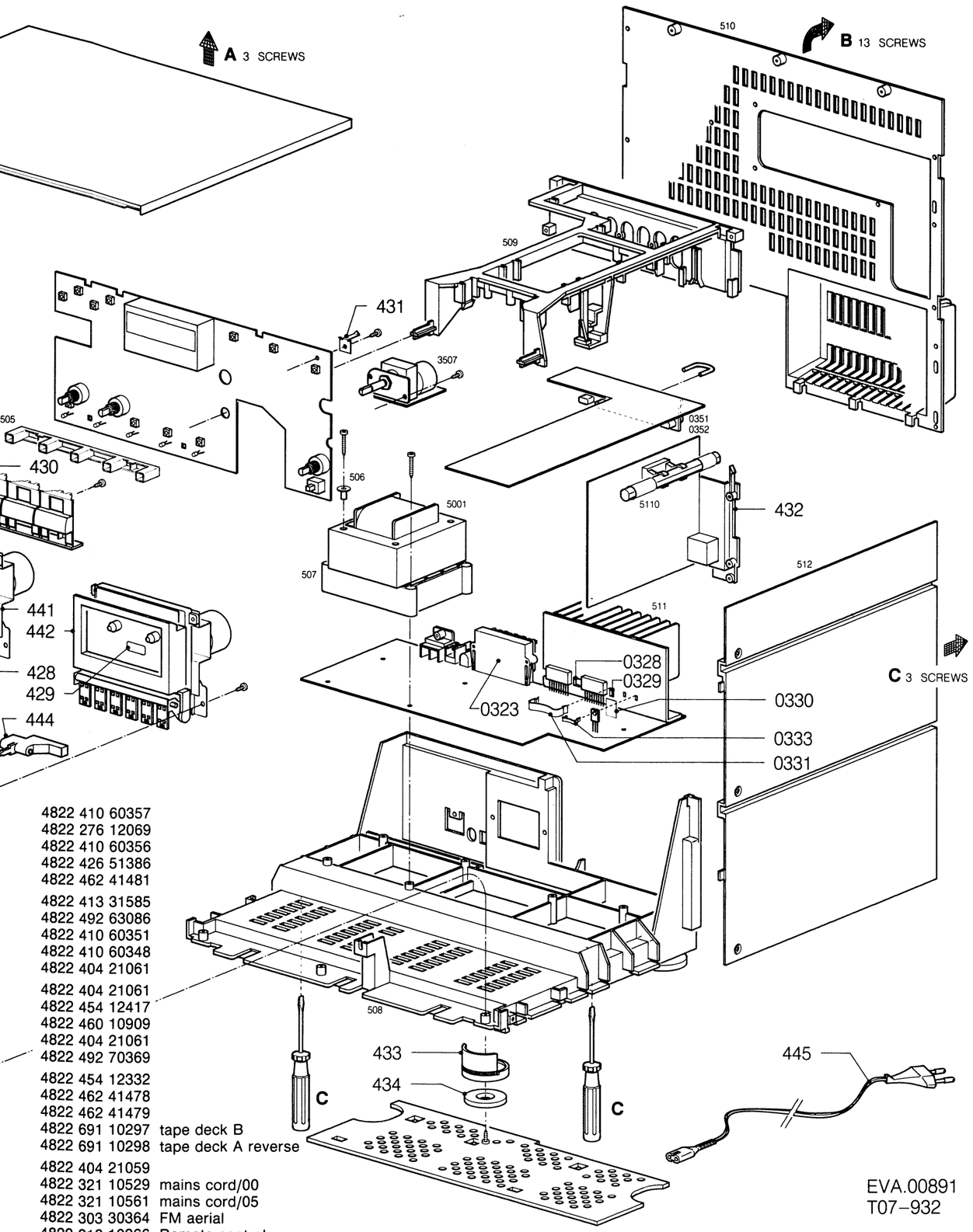
| | |
|---|---|
| 2102 | 5322 122 |
| 2107 | 4822 122 |
| 2108 | 4822 122 |
| 2110 | 4822 122 |
| 2111 | 4822 125 |
| 2112 | 4822 122 |
| 2113 | 4822 122 |
| 2114 | 4822 122 |
| 2115 | 5322 122 |
| 2116 | 5322 122 |
| 2117 | 5322 122 |
| 2118 | 4822 122 |
| 2120 | 5322 122 |
| 2125 | 5322 122 |
| 2126 | 5322 122 |
| 2127 | 5322 122 |
| 2128 | 5322 122 |
| 2129 | 5322 122 |
| 2132 | 5322 122 |
| 2133 | 4822 122 |




4822 410 60357
4822 276 12069
4822 410 60356
4822 426 51386
4822 462 41481
4822 413 31585
4822 492 63086
4822 410 60351
4822 410 60348
4822 404 21061
4822 404 21061
4822 454 12417
4822 460 10909
4822 404 21061
4822 492 70369
4822 454 12332
4822 462 41478
4822 462 41479
4822 691 10297 tape deck B
4822 691 10298 tape deck A reverse
4822 404 21059
4822 321 10529 mains cord/00
4822 321 10561 mains cord/05
4822 303 30364 FM aerial
4822 218 10266 Remote control

EVA.00891
T07–932



## ELECTRICAL PARTS

### Miscellaneous

| | | |
|---|---|---|
| 0273 | 4822 276 12465 | EVQ-QAC04B |
| 0274 | 4822 276 12465 | EVQ-QAC04B |
| 0275 | 4822 276 12465 | EVQ-QAC04B |
| 0276 | 4822 276 12465 | EVQ-QAC04B |
| 0277 | 4822 276 12465 | EVQ-QAC04B |
| 0278 | 4822 276 12465 | EVQ-QAC04B |
| 0279 | 4822 276 12465 | EVQ-QAC04B |
| 0280 | 4822 276 12465 | EVQ-QAC04B |
| 0281 | 4822 276 12465 | EVQ-QAC04B |
| 0282 | 4822 276 12465 | EVQ-QAC04B |
| 0283 | 4822 276 12465 | EVQ-QAC04B |
| 0284 | 4822 276 12465 | EVQ-QAC04B |
| 0285 | 4822 276 12465 | EVQ-QAC04B |
| 0286 | 4822 276 12465 | EVQ-QAC04B |
| 0287 | 4822 276 12465 | EVQ-QAC04B |
| 0299 | 4822 276 12639 | SPEA |
| 0302 | 4822 276 12639 | SPEA |
| 0312 | 4822 265 20291 | mAINS |
| 0313 | 4822 264 30175 | POWER JACK OUT |
| 0314 | 4822 267 31051 | CINCH.ORANGE |
| 0322 | 4822 264 30236 | HEADPHONE |
| 0323 | 4822 267 31107 | DUAL LOCK |
| 0328 | 4822 325 20133 | T0220 |
| 0329 | 4822 325 20133 | T0220 |
| 0330 | 4822 255 40133 | T0126 |
| 0331 | 5322 255 40397 | TDA 1520 |
| 0332 | 5322 255 40397 | TDA 1520 |
| 0333 | 4822 255 40128 | T0126 |
| 0351 | 4822 267 40877 | CINCH.6FOLD |
| 0352 | 4822 267 40877 | CINCH.6FOLD |
| 0362 | 4822 276 12659 | |
| 1300 | 4822 253 10039 | T-2A |
| 1301 | 4822 253 10039 | T-2A |
| 1302 | 4822 253 10048 | T-3.15A |
| 1303 | 4822 253 10048 | T-3.15A |
| 1401 | 4822 134 40967 | 6.3V 150mA |
| 1402 | 4822 134 40967 | 6.3V 150mA |

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| | | |
|---|---|---|
| 2102 | 5322 122 32967 | 5P6 NPO |
| 2107 | 4822 122 31727 | 470P NPO |
| 2108 | 4822 122 31727 | 470P NPO |
| 2110 | 4822 122 32765 | 820P NPO |
| 2111 | 4822 125 60102 | 30P |
| 2112 | 4822 122 31727 | 470P NPO |
| 2113 | 4822 122 31727 | 470P NPO |
| 2114 | 4822 122 32765 | 820P NPO |
| 2115 | 5322 122 32448 | 10P NPO |
| 2116 | 5322 122 32481 | 15P NPO |
| 2117 | 5322 122 32481 | 56P NPO |
| 2118 | 4822 122 32507 | 6P8 NPO |
| 2120 | 5322 122 32654 | 22N |
| 2125 | 5322 122 32966 | 39P NPO |
| 2126 | 5322 122 32966 | 39P NPO |
| 2127 | 5322 122 32654 | 22N |
| 2128 | 5322 122 32481 | 56P NPO |
| 2129 | 5322 122 32654 | 22N |
| 2132 | 5322 122 34123 | 1N |
| 2133 | 4822 122 32504 | 15P NPO |

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| | | |
|---|---|---|
| 2136 | 4822 126 10388 | 5P6 |
| 2138 | 4822 122 32482 | 22P NPO |
| 2140 | 4822 122 32927 | 220N 50V |
| 2142 | 5322 122 32452 | 47P NPO |
| 2143 | 5322 122 32452 | 47P NPO |
| 2145 | 4822 122 32765 | 820P NPO |
| 2149 | 5322 122 33537 | 1P2 NPO |
| 2151 | 4822 125 60101 | 10P N450 |
| 2153 | 4822 125 60102 | 30P |
| 2156 | 4822 122 33339 | 4N7 |
| 2157 | 4822 122 33339 | 4N7 |
| 2159 | 5322 122 32654 | 22N |
| 2162 | 4822 122 31727 | 470P NPO |
| 2164 | 5322 122 34099 | 470P |
| 2166 | 5322 122 32654 | 22N |
| 2169 | 5322 122 32654 | 22N |
| 2174 | 4822 122 33543 | 15N |
| 2175 | 4822 122 33543 | 15N |
| 2180 | 5322 122 32965 | 18P NPO |
| 2181 | 5322 122 32481 | 15P NPO |
| 2183 | 4822 122 32927 | 220N 50V CERC |
| 2185 | 4822 122 32765 | 820P NPO |
| 2192 | 4822 122 32927 | 220N 50V CERC |
| 2193 | 4822 122 32765 | 820P NPO |
| 2194 | 4822 122 33515 | 82P NPO |
| 2195 | 4822 122 32927 | 220N 50V CERC |
| 2196 | 5322 122 32268 | 470P NPO |
| 2197 | 4822 122 32765 | 820P NPO |

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|---|---|---|
| 3112 | 4822 111 91534 | 5k6 |
| 3113 | 4822 116 80887 | 68Ω |
| 3114 | 4822 100 11141 | 10k |
| 3115 | 4822 111 90217 | 47Ω |
| 3118 | 4822 116 80882 | 270Ω |
| 3119 | 4822 116 90342 | 27k |
| 3121 | 4822 111 91518 | 100k |
| 3122 | 4822 111 90569 | 2k7 |
| 3127 | 4822 111 91532 | 4k7 |
| 3129 | 4822 111 91518 | 100k |
| 3130 | 4822 111 91518 | 100k |
| 3133 | 4822 111 91518 | 22k |
| 3136 | 4822 111 91522 | 2k2 |
| 3137 | 4822 111 91534 | 5k6 |
| 3138 | 4822 111 91532 | 4k7 |
| 3140 | 5322 111 90092 | 1k0 |
| 3144 | 4822 111 91521 | 18k |
| 3145 | 4822 100 11141 | 10k |
| 3146 | 4822 111 91532 | 4k7 |
| 3155 | 4822 111 91526 | 3k3 |
| 3156 | 4822 111 90251 | 22k |
| 3158 | 4822 111 91518 | 100k |
| 3162 | 4822 111 91652 | 47Ω |
| 3165 | 4822 111 91661 | 47k |
| 3172 | 4822 111 91523 | 22k |
| 3323 | 4822 116 82054 | 1k0 PRO1 |
| 3367 | 4822 116 52385 | 1Ω SFR25H |
| 3368 | 4822 116 52385 | 1Ω SFR25H |
| 3391 | 4822 116 81402 | 270Ω PRO2 |
| 3392 | 4822 116 81402 | 270Ω PRO2 |

| | | |
|---|---|---|
| 3395 | 4822 112 31061 | 18Ω AC10 |
| 3405 | 4822 116 82143 | nFR25 18Ω |
| 3450 | 4822 116 80562 | nFR25 10Ω |
| 3501 | 4822 102 10413 | BALANCE 2X10k |
| 3507 | 4822 102 10414 | VOLUME 2X20k |
| 3523 | 4822 102 10412 | BASS-TREBBLE 2X50k |
| 3529 | 4822 102 10412 | BASS-TREBBLE 2X50k |
| 3611 | 4822 100 20166 | 10k |
| 3612 | 4822 100 20166 | 10k |
| 3645 | 4822 116 80335 | nFR25 47Ω |
| 3647 | 4822 116 80335 | nFR25 47Ω |
| 3661 | 4822 116 80335 | nFR25 47Ω |
| 3711 | 4822 116 52858 | SFR25H 4Ω7 |
| 3715 | 4822 100 11163 | 100k |
| 3716 | 4822 100 11163 | 100k |
| 3719 | 4822 100 20589 | 20k |
| 3720 | 4822 100 20589 | 20k |
| 3721 | 4822 100 20589 | 20k |
| 3722 | 4822 100 20589 | 20k |
| 3723 | 5322 116 53479 | SFR25H 22Ω |
| 3774 | 4822 100 20589 | 20k |
| 3775 | 4822 100 20589 | 20k |
| 3776 | 4822 100 20589 | 20k |
| 3777 | 4822 100 20589 | 20k |

| | | |
|---|---|---|
| 5001 | 4822 146 30817 | mAINS |
| 5101 | 4822 156 30947 | |
| 5103 | 4822 156 30947 | |
| 5104 | 4822 157 60284 | |
| 5105 | 4822 156 10459 | AM-OSC. |
| 5106 | 4822 157 53192 | 0.22µH |
| 5107 | 4822 242 72096 | PACKAGE |
| 5108 | 4822 158 60511 | AM |
| 5109 | 4822 242 71878 | SFZ450A4 |
| 5110 | 4822 526 10466 | AL-2ZA120 |
| 5111 | 4822 157 52734 | FM |
| 5112 | 4822 303 50034 | 7.2MHz |
| 5401 | 4822 242 72457 | 4MHz |
| 5402 | 4822 152 20699 | 560µH |
| 5601 | 4822 156 20811 | TOKO 35mH |
| 5601 | 4822 157 53123 | 200µH |
| 5602 | 4822 156 20811 | TOKO 35mH |
| 5603 | 4822 242 71144 | MPX |
| 5604 | 4822 242 71144 | MPX |
| 5605 | 4822 156 20811 | TOKO 35mH |
| 5606 | 4822 156 20811 | TOKO 35mH |
| 5701 | 4822 156 20946 | OSCILLATOR 100kHz |

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|---|---|
| 5322 130 31684 | BB 809 |
| 4822 130 34281 | BZX59C15 |
| 4822 130 34173 | BZX79 C5V6 |
| 4822 130 80233 | BZX79C12 |
| 4822 130 31253 | BZX79C2V4 |

| | |
|---|---|
| 5322 130 31504 | BZX79C20 |
| 4822 130 34174 | BZX79C4V7 |
| 4822 130 34278 | BZX79C6V8 |
| 4822 130 81678 | GL2PR6 RED |
| 4822 130 81254 | GP1U520X |
| 4822 130 80305 | KBU4D |
| 4822 130 81008 | LT3N83A GREEN |
| 4822 130 81007 | LT3N83A GRREN |
| 4822 130 81007 | LT3P82A RED |
| 4822 130 32227 | OF 642 |
| 4822 130 31438 | 1N4001GP |
| 4822 130 30621 | 1N4148-75 |

**Rest semi-conductors**

| | |
|---|---|
| 4822 130 90734 | LP-1776-C |

| | |
|---|---|
| 5322 130 44779 | BC338-40 |
| 5322 130 44779 | BC338-40 |
| 4822 130 44257 | BC547 |
| 4822 130 40938 | BC548 |
| 4822 130 40937 | BC548B |
| 4822 130 44196 | BC548C |
| 4822 130 42231 | BC557C |
| 4822 130 44197 | BC558B |
| 5322 130 60068 | BC558C |
| 4822 130 61207 | BC848 |
| 5322 130 41982 | BC848B |
| 4822 130 40982 | BD433 |
| 5322 130 44786 | BD675 |
| 4822 130 44154 | BF199 |
| 4822 130 60093 | 2SA838 |
| 4822 130 60163 | 2SC1047 |

| | |
|---|---|
| 4822 209 71321 | AN7411 |
| 4822 209 82059 | BA 6109 |
| 4822 209 72749 | CXA 1100 |
| 4822 209 72744 | CXA 1240P HERA II |
| 4822 209 72748 | LC7821 |
| 4822 209 71331 | LM 7000 |
| 4822 209 83274 | NJM4560D |
| 4822 209 83274 | NJM4560D |
| 4822 209 60502 | NMHz9313BN |
| 5322 209 11268 | PCF74HCT16[illegible]P |
| 4822 209 71636 | TC4016BP |
| 4822 209 61576 | TDA 1514N7 |
| 4822 209 61548 | TDA1602N2A |
| 4822 209 72254 | TMP47C421AF |

(GB) **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

**ESD**

(NL) **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.